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FOUNDED BY JAMES PLEASANT PARKER.

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SUPPURATIVE FRONTAL SINUSITIS—ITS RADICAL TREATMENT BY THE METHOD OF OGSTON AND LUC.

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Frontal Sinusitis, especially in its chronic purulent and muco-purulent forms, by reason of its obstinate resistance to the ordinary methods of treatment and of the obstacle offered by its anatomical situation to its thorough treatment by the endo-nasal route, has proven to be one of the most unsatisfactory diseases that fall to the lot of the rhinologist to treat. The various methods that have been employed to overcome its chronic persistence, and the many antiseptics and astringents that have each in their turn been employed in the form of injections or applications, have all given but indifferent results; so that, at the present day, we may consider the affection as belonging to that category of diseases which require the adoption of radical surgical measures for their permanent eradication. More than twenty years ago radical operations were performed upon the frontal sinus, but at that time, and until recent years, the external opening of the sinus was reserved for those cases having fistulous tracts opening externally, or where the presence of tumors or other

morbid conditions specially demanded the procedure. Of late years the external operation has been gaining favor over the less radical and, we may say, more risky procedure of perforation and curettage of the cavity through the endo-nasal route.

This has for a long time been a subject of more or less lively discussion, but recently it has been given a fresh impetus by the publication of a communication, tendered by Dr. Luc, of Paris, to the Société Française de Laryngologie de Rhinologie et d'Otologie, at its annual congress in the month of May, 1896, in which the author described the technique of an operative procedure for the radical cure of empyema of the frontal sinus, which, though following the old method of opening externally and draining by the nasal route, presented some most important modifications. During the following year the operation was performed by a number of the author's confreres, and at the last meeting of the society the subject was again brought up and discussed, and the method received flattering commendations from those who had had occasion to test its merits. A few unsuccessful results were reported, and in the course of the discussion several modifications in the details were suggested. The method, the operative technique of which will be described in detail below, has for its essential principles the free exposure of the sinus by an opening made in its anterior wall, thorough curettage of the interior, free drainage by a large nasal communication and immediate closure of the external wound.

It appears that this operation in its essential features was extolled in the year 1884, by Dr. Alexander Ogston, of Aberdeen, England, but it did not at that time receive the patronage of the profession at large, and the interest was only revived last year when Dr. Luc, unaware, at the time, of the former treatment of the subject by Ogston, first exposed his method of operating and demonstrated the favorable results obtained thereby in a series of cases upon which he had operated. Before dwelling on the details of the operation let us consider first the means by which we may arrive most readily at a positive diagnosis of suppurative disease of the frontal sinus, differentiate it from affections of the other accessory cavities, and recog-

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nize the indications for the adoption of active surgical measures.

In the majority of cases little difficulty is experienced in making a diagnosis; the chain of symptoms being clearly recognizable and so unmistakeable in their character as to leave little room for doubt. There are other cases, however, that present such ill-defined and deceptive symptoms that the means at our command for differentiating and localizing the seat of the disease must be brought into play before operative measures can be considered justifiable.

Patients affected with frontal sinusitis come to us complaining usually of headache or neuralgic pains referred to the frontal or supra-orbital region. It is generally constant, but may become intermittent in character, and at times is of an intensity exceedingly distressing.

This pain may be present in all cases of sinusitis, and is of the same character, location and intensity when the maxillary or sphenoidal sinuses or the ethmoidal cells are affected as when the frontal sinus alone is involved. Neuralgic pain, therefore, in the region of the frontal sinuses cannot be construed as indicative of frontal sinus disease particularly, but rather is evidence in favor of disease of one of the sinuses, which may be the frontal sinus.

Tenderness on pressure, however, in the supra-orbital region, accompanied by the neuralgic pain, whether associated or not with temperature, is strong proof of frontal sinus implication. The pain and tenderness, when the result of frontal sinusitis, is attributed to accumulation of pus in the cavity (Bosworth) which, through obstruction of the infundibulum, either from inflammatory swelling of the mucosa or from the presence of tumors or fungous granulations, gives rise to considerable pressure within the cavity and not uncommonly causes the objective symptoms of bulging of the orbital contents or of the supra-orbital region. The pus often, in old cases, breaks through the thin orbital plate and forms an abscess or a fistulous tract beneath the orbital arch. The cerebral symptoms due to pressure upon the brain from distention of the inner wall of the cavity are but vaguely defined and of little practical value in establishing a diagnosis. Per-

foration of this thin inner wall may occur and the characteristic symptoms of acute meningitis or cerebral abscess supervene. Amaurosis and diplopia have been known to occur where there was displacement of the eyeball. It has been claimed that direct percussion over the sinuses gives some evidence of their condition, but one can easily imagine that such skill would be required to distinguish the difference in resonance or pitch of a percussion note over the frontal sinus as to render the means of diagnosis unreliable and impracticable.

When escape of the pus takes place through the nasal cavity or through a fistulous tract the subjective symptoms of headache or tenderness are not so prominent. Discharge from the nose of thick, yellow, creamy pus is almost constantly experienced and is only entirely absent when there is occlusion of the fronto-nasal canal. Rhinoscopic examination shows this pus to come from the middle meatus, which, in the majority of chronic cases, contains either a mass of polypoid granulations or folds of hypertrophied and degenerated mucosa covering the middle turbinated bone, which sometimes completely fill the meatus.

If, when this morbid tissue is removed, pus is still seen to exude from the middle meatus and the region of the infundibulum, we have almost conclusive evidence of infection of one or more of the nasal accessory cavities. The question then presents itself to determine which of these gives rise to the purulent discharge, and with the various means that are at our disposal at the present day for the exploration and transillumination of these cavities we may readily arrive at positive conclusions as to the seat of the morbid process. When upon examination of the nasal cavity pus is seen in the middle meatus or on the middle turbinated bone it should be carefully removed with a cotton tipped applicator, and if it does not reappear at once to disclose its point of origin, the patient should be made to sit for a few minutes with the head bowed upon the knees. Reappearance of the pus in the meatus after a few moments adds another link to the chain of evidence, and points to the maxillary sinus as the source of the discharge.

The flow of pus from the other sinuses is favored by the

upright position, that from the frontal sinus and anterior ethmoidal cells usually flowing forward over the anterior extremity of the middle turbinated bone and from the sphenoidal sinus back into the naso-pharynx.

There is no fixed rule for this, however, which depends upon the conformation of the nasal cavity and the presence or absence of neoplasms diverting this natural tendency above described. Some patients do not complain of a discharge from the nose, but of a constant expectoration of pus which falls into the throat from the naso-pharynx. I had the occasion to observe a case of this kind quite recently at the clinic of Dr. Moure, in which case the left maxillary sinus was found to contain pus. There was no discharge whatever from the nose anteriorly, but a constant expectoration of the characteristic creamy pus, which found its way from the middle meatus back into the pharynx. Transillumination of the maxillary sinus can be practiced either by means of the Heryng's lamp, or better with the lamp constructed recently for that purpose by Dr. Escat, of Toulouse (Fig. 1).

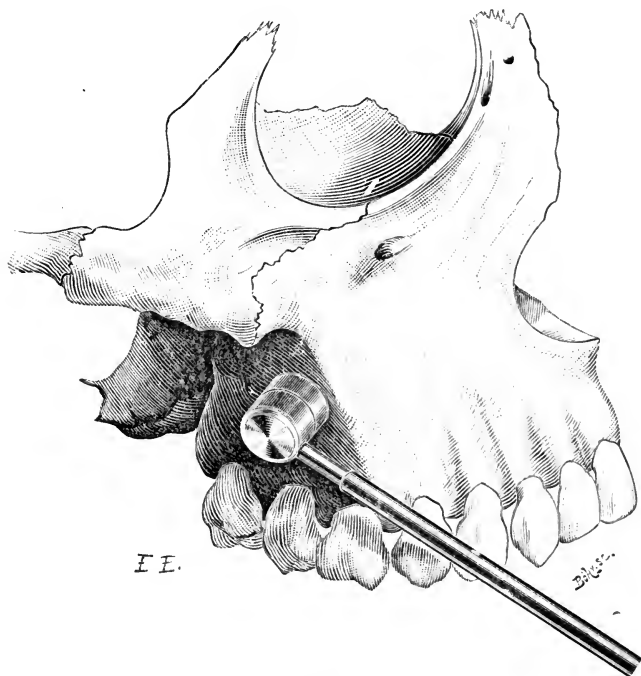


Fig. 1. Lamp of Escat.

This latter consists of a small incandescent bulb with a protecting metal tube, attached at right angles to a straight handle and is applied directly to the retro-maxillary fossa on the inner side of the cheeks. It shows very distinctly any opacity from the presence of pus or other morbid material in the cavity. At last, to clear up all doubt as to the presence of pus in the maxillary sinus, exploratory puncture should be resorted to. For this purpose a small, slightly curved or straight trochar is passed through the nostril and the point rested against the antral wall high up beneath the anterior extremity of the inferior turbinated bone. Here the bony partition is very thin, and only a slight tap of the mallet is required to cause the point of the trochar to enter the cavity. The trochar is withdrawn, leaving the canula in place, through which an injection of

sterilized water is made, to verify the presence or absence of pus.

This method of exploration is in general to be preferred to catheterization of the natural canal, which is scarcely less painful, more difficult, and does not allow free escape of the injected fluid.



Lamp of Escat—Applied.

Should pus be found in the maxillary sinus we should not by any means consider our diagnosis as complete, but should then extend our investigations toward the frontal sinus keeping in mind the fact that disease of two or more of the accessory cavities existing at the same time is unfortunately common and that it is frequently in the frontal, where the train of infection is lighted up. An attempt should be first made under the influence of cocaine anesthesia to catheterize the fronto-nasal canal by means of a small flexible canula properly curved to follow the direction of the canal. In certain cases this can be accomplished successfully and the cavity explored in search of pus. Great difficulty, however, is often experienced in finding the orifice of the

canal until after the removal of the anterior portion of the middle turbinated bone and all granular and polypoid masses, and even then it is not always practicable. We must depend, therefore, in great measure, upon the transillumination of the sinus, which is very effectively accomplished at the present day with the aid of a Vohsen's lamp or of the Diaphanoscope of Doctor Moure, of Bordeaux, (Figs. 2 and 3.) This latter is specially to be commended for its effectiveness and convenience. It consists, as seen



Fig. 2. Diaphanoscope of Moure.

in Fig. 3, of a small-sized incandescent bulb inclosed in a wooden metal-lined cylinder, which serves as a handle for the lamp. At one extremity are the two posts for the attachment of the conducting wires, isolated from the handle by a hard rubber plate perforated for the transmission of one of the conductors to the lamp. The current is turned on or off at will, by means of the press-button attachment B., through which the circuit is completed. The tube containing the lamp is surmounted by another tube of gutta-percha inclosing a glass cylinder (G.) with a convex extremity. This, while serving for the better transmission



Fig. 4. Drainage tube—(Luc.)

of the light, acts, at the same time, as a nonconductor of the heat generated by the lamp, and this annoying feature is avoided. The parts can be readily detached and the bulb renewed when desired. When the instrument is applied to the supra-orbital region in a darkened room the light is transmitted through the bony walls, and thus, as for the maxillary sinus, any accumulation of pus, or the presence of the morbid thickening of the mucosa in the sinus, is made apparent by a noticeable opacity of the region. In some subjects a certain degree of opacity may

exist on one or both sides, independent of any morbid condition, and may be attributed to a natural thickness of the integument, or frontal bone, or to diminutive size or entire absence of the cavities themselves, conditions which are often found in the negro race. Any marked difference, however, in the translucency of the two sides, or an absence of translucency in one or both sides, can be depended upon as an indication of some morbid condition within the frontal sinus, the nature of which is usually proven, by the existence of such concomitant symptoms above mentioned, to be an empyema. Suppurative disease of the anterior ethmoidal cells, according to Luc, is but rarely independent of frontal sinusitis, and may be recognized, when it exists, as further evidence in favor of the existence of the latter disease. Among other authors who do not share this opinion is Doctor Moure, who claims that ethmoidal disease is often independent of frontal sinusitis, and that, though it can be readily recognized on rhinoscopic examination, it is not easy to say that the disease is limited either to the anterior or the posterior cells. Owing to the intimate connection between the cells, limitation of the diseased process to any special group of cells is rather an improbable occurrence. Rhinoscopic examination in ethmoidal disease shows the surface of the middle turbinated bone to be covered with a number of small polypoid granulations which extend over the lateral wall of the upper nasal cavity. Granulations, or polypi, associated with disease of the maxillary or frontal sinuses, are clustered above the infundibulum and are confined to this region. Sphenoidal disease presents but vague indications as to its locality, especially when it exists in latent form. The discharge usually falls back into the pharynx and is expectorated, but, as before stated, this not rarely occurs in disease of the other cavities as well. In the majority of cases, when the nasal cavities are roomy the canal can be catheterized, and in some cases pus can be seen exuding directly from the orifice of this canal. The diagnosis of frontal empyema, or of chronic suppurative sinusitis, once made, it is useless, according to the present tendency, to lose time on other measures than those directed toward the free evacuation of the pus and the removal of the focus of the disease.

Especially in those cases which have followed a chronic latent course, with a more or less constant discharge of pus or muco-pus from the nose, it is necessary to resort to radical treatment to avoid that long, tedious and unsatisfactory treatment by injections and astringent applications. In these cases the mucosa has become invariably degenerated, often thickened and granular and undergoing polypoid change, and mere drainage and cleansing give but unsatisfactory results, as a rule, and sooner or later we must resort to the complete removal of this diseased tissue to check the suppurative process.

The technique of the procedure now considered as the "Ogston-Luc Operation" is simple, and, as before stated, differs from the old radical operation in principle only, as regards closure of the external wound and the establishment of a large communication with the nasal fossa.

It must be borne in mind that the ultimate result depends, in great measure, upon the strict observance of details and thoroughness in their execution, with the view of completely eradicating the diseased mucosa as though it were a malignant neoplasm. After having shaved the eyebrow and rendered the field of operation as nearly aseptic as possible, under chloroform or ether anesthesia, an incision is made along the inner third of the orbital arch, just below the supra-orbital ridge, and extended to the distance of a centimetre obliquely downward along the root of the nose. This incision, made for the opening of one of the sinuses, leaves but a scarcely noticeable cicatrix, which is almost hidden by the regrowth of the eyebrow. Doctor Luc has recently expressed his preference, however, for a straight horizontal incision, from the center of which, in the median line, a vertical incision is carried down to the root of the nose. This is done with a view of exposing both cavities, which, in his opinion, are so frequently simultaneously involved. Should it be especially desired to avoid disfigurement, a separate incision for each side would be preferable. In either case the incision is carried down to the bone, the bleeding points caught up and ligated, and the periosteum detached and retracted to expose the bony wall of the sinus. For making the opening through the bone we have recourse to the electric drill, the crown

trephine, and the gouge and mallet. Of these the latter is to be recommended for safety and convenience. The opening should be made large enough to permit illumination of the cavity by reflected light and allow access to all parts of the interior for the manipulation of instruments. A circular opening the size of a ten cent piece is sufficient for all purposes.

The cavity having been opened and the pus evacuated, we arrive at the important stage of the operation, viz.,

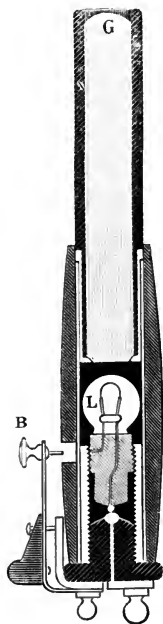


Fig. 4. Diaphanoscope of Moure.

careful curettage of the sinus and removal of all fungous granulations and diseased mucosa. The effectiveness with which this is carried out influences in no small degree the final result of the treatment. With the aid of a small Valkmann curette every nook and cranny of the little cavity is sought out and subjected to the curetting process, special care being given to the treatment of the fronto-nasal canal, the seat of predilection of these pyogenous granulations. Having satisfied ourselves that not a trace of the diseased tissue remains to serve as a point of origin for the return

of the disease, we proceed with the next important step, that of establishing free drainage by way of a large communication with the nasal cavity. Considerable hemorrhage may occur during the curettage, and momentary packing of the cavity with gauze strips will be necessary to keep clear the field of operation. In addition to enlarging the natural nasal communication, it is the custom to remove with a gouge a portion of the floor of the sinus near its posterior thin part, not fearing, if necessary, to traverse some of the ethmoidal cells in making the opening sufficiently large. This being done, and before inserting the drainage tube, the parts are subjected to an application of a twenty per cent. solution of chloride of zinc, a cotton mounted applicator being used to apply the solution to every part of the cavity.

As a drain, Doctor Luc employs a perforated rubber tube having one extremity expanded in the form of a funnel (Fig. 4), and for its introduction the well-known Panos probe, or any flexible probe, is required. The former instrument, as is known, consists of a handle holding a probe so curved as to correspond, in most subjects, to the direction of the fronto-nasal canal. With the larger concavity of the probe to the front, the point is introduced into the opening in the floor of the sinus, and, by a turning movement, is made to pass into the nasal chamber and present externally at the nostril. A strong thread is attached to this extremity, and, by the withdrawing of the instrument, is made to pass out at the supra-orbital wound. The smaller end of the drainage tube is then attached, and, by traction on the lower extremity of the thread, is made to pass into the canal. Traction is made until the expanded extremity enters the sinus and engages at the orifice of the nasal communication.

The tube is cut off below, at the level of the nostril, and left in place; the expanded extremity, lying within the cavity above, serves as a funnel to collect and carry off all post operative secretions formed therein, and, at the same time, prevent displacement of the tube.

A little iodoform powder is insufflated into the cavity, and, the wound being carefully sutured, a light compress of iodoform gauze and absorbant cotton is applied and the

operation is completed. As to the after treatment, little is required to be done. If no elevation of temperature is detected, the dressing is not removed until the end of six or seven days, sufficient time being allowed for firm union to take place. It was formerly the habit of Doctor Luc, in the after treatment of his cases, to employ, for the first three days, injections through the drainage tube of a tepid solution of bichloride of mercury, 1-2000; on the following days an ethereal solution of iodoform.

At the present day he dispenses with the bichloride injections almost entirely and employs instead only the iodoform solution.

The patient should be given instructions to avoid blowing the nose too forcibly while the drainage tube is in place, and even for several days after its removal, on account of the danger of inflating the sinus, tearing the sutures in the external wound, and introducing septic matter from the nasal cavity. In a case operated by Doctor Moure, of Bordeaux, the patient, while blowing his nose, tore loose the sutures in the wound and produced an emphysema of the surrounding tissues. A firm compress was applied and union took place, however, without serious consequences. The question as to how long the drainage tube should be left in place is not definitely settled, and one is to be guided, to great extent, by the comfort with which it is borne by the patient and the quantity of discharge from the sinus. Both Doctor Ogston and Doctor Luc recommend from eight to fifteen days. Doctor Moure considers it advantageous to remove the tube after four or five days.

In considering the principle of this procedure from a theoretical point of view, one cannot but be impressed with this plan for the eradication of the disease. Since, aside from the general condition of the patient, the morbid process is confined to the mucous membrane and periosteal lining of the sinus, and, as we know, is not specific or malignant in character, one is certainly justified in believing that, if these diseased tissues are removed completely and the cavity rendered aseptic, a return of the disease can only take place through a reinfection. It is, unfortunately, often the case that when our theories seem to be most

rational and well founded, the practical test shows them to be lacking in some important feature, or else that we have failed in their perfect execution. Of course it is the height of folly to expect that any operation should be infallible, and it is not surprising to hear of occasional cases being reported in which this treatment had been followed by a renewal of the suppuration in the sinus.

This has occurred even in cases in which careful attention was given, so it was said, to the details of curettage and drainage of the cavity and to aseptic closure of the external wound. In such cases, if we consider that the operation was complete in every particular, we must look to the source of reinfection as from the nasal cavity, or from existing disease in the adjoining sinus or ethmoidal cells. Although Zuckerkandl tells us that, in the vast majority of subjects, the septum between the two sinuses is of considerable thickness, and agrees with Hajek in claiming that frontal empyema is most often unilateral, from the fact that the pus penetrates with much more difficulty through this bony partition than into the orbit or cranial cavity, it is a clinical fact, frequently observed, that perforation has occurred, and that pus breaks through from one cavity into the other. It is possible that Zuckerkandl has based his opinion upon observations made on the skulls of healthy subjects, and has overlooked the fact that the long contact of pus with the bony walls produces perhaps some degeneration, or sometimes necrosis, which makes perforation not only possible, but probable, in these cases of long standing suppuration. Before operating upon one side we should take the precaution to ascertain the condition of the other side. Closure of the external wound is a commendable feature of the operation, and when proper precautions are taken for asepsis primary union rarely fails to take place, and, thereby, we not only avoid a disfiguring cicatrix, as is left in the open method of treatment, but suppress, at the same time, this source of constant infection from the outside, which certainly predisposes both to attacks of erysipelas and a continuation of the suppuration. The question has also been discussed as to the probability that, with such a free communication with the nasal cavity, infection of the sinus would readily occur, especially if

there existed an atrophic rhinitis, or other septic condition. in the nasal cavity. The results, in this particular, are more favorable than might be supposed, and the rapidity with which, as a rule, the cavity, once thoroughly curetted and cauterized, resumes its normal condition in the presence of this large nasal communication has called forth the suggestion that the bactericidal properties of the nasal mucous may exert a protective influence over the adjoining cavity. In one of Luc's cases, kept under observation for a long while after the operation, the interior of the frontal sinus could be seen by rhinoscopic examination, and appeared always dry and healthy.

Should any evidence of reinfection occur the parts can be again curetted, advantage being taken of the free access now offered by this large communication to follow the endo-nasal route. In conclusion, we feel justified in saying that, with the advantages offered by the Ogston-Luc operation over the older methods, its simplicity and elegance, and the favorable results it has given, we have at our disposal a valuable method of operating, the true worth of which is yet to be more fully appreciated. The fact that it has run the gauntlet of criticism by our worthy confreres in France, and has been the subject of their favorable consideration, is a sufficient recommendation for its more universal adoption.

SOME UNUSUAL AURAL CASES.

BY H. A. ALDERTON, M. D.,

BROOKLYN, N. Y.

I.—A Case of Diplacusis Binauricularis Echoica.

Mr. Leslie M., aged 27 years, an athlete rather over-trained, came to my office November 23, 1897, complaining of deafness and tinnitus in the left ear; the deafness being noticed accidentally. On examination, he heard the watch 12 inches; whisper 45 ft.; speech 45 ft.; external ear normal; Mt. somewhat dull and thickened; eustachian tube easily penetrated by catheterization, with no improvement to hearing. The Galton whistle was heard at the mark $1\frac{6}{10}$; Weber heard on vortex, forehead and teeth, in the middle line, all better in the right ear.

Tuning-forks:

RINNE.		ac	ac	ac	ac	ac	ac
Schwabach	ac	20	16	15	50	62	40
	bc	11	3	4	6	13	27
T. F -----		C-I	C	CI	C II	C III	C IV

With the C III fork by BC, when placed on the mastoid process of the left ear, two notes were heard (with the finger in the right ear to shut out AC) one a little later than the other; at the end of 13 seconds the note heard by the left ear ceased, while that heard by the right ear continued to be heard for 17 seconds more. The test was repeated a number of times, always with the same result. The CIII fork was the only one that gave such a reaction. Unfortunately, the patient, though unusually intelligent,

because of a lack of musical ability was not able to tell whether the interval between the notes was harmonic or otherwise. The explanation seems to be warranted that the right ear heard the note as elicited, and, because of its superior functional ability, heard it across the head, even while the left ear was perceiving it; the pathologic changes in the left ear were of a nature to alter the musical character of the note and to limit its duration, while at the same time delaying its transmission so that the effect of an echo was produced. Bone conduction throughout, except for the C iv fork, was reduced. We must, therefore, believe that we had to do with a change in the transmitting apparatus as well as of the perceiving apparatus, even though the Rinné does not lend countenance to this stand.

II.—Two Cases of Peculiarly Shaped Exostosis of the External Auditory Canal.

Case I.—Bertha W., aged 18 years, came to me January 13, 1898, giving the following history: For six and one-half months has had an occasional shrill whistling noise in both ears; hearing good; for two to three weeks some swelling and tenderness of the inferior maxillary articulation; itching in the canal. No history of rheumatism in the family, but she herself has had rheumatic pains in the knees, etc. Examination A. D.: Canal dry; Mt. pale and the manubrium is very long, curved and spatulate at its lower extremity. A. S., same. The point of particular interest was the existence of a sharply defined pyramidal exostosis on the superior portion of the posterior canal wall, about 3 mm. in height, and the same distance from the Mt., the apex pointing directly toward the short process of the malleus (see Fig. 1). It was a true cone, the base being vascular, the apex white as ivory; the whole hard to the touch of the probe. There was no other abnormality about the canal, and there had never been any suppurative trouble. Evidently growth was still taking place at the pinkish, vascular base, whereas the apex was simply being pushed outward and had become ivory-like in look and consistency.

When presented at the New York Otological Society, no other explanation of this peculiar growth could be given

than that it was a local gouty manifestation of the constitutional diathesis.

Case II.—James P. O., aged 40 years, referred to me by Dr. William Simmons, January 30, 1898. Hardness of hearing in both ears for six years, with constant, aggravated tinnitus in the left, following sea-water bathing. Gives rheumatic history; never has had syphilis. Examination of A. S.: Auricle normal; Mt. thickened without showing any evidences of cicatrization; watch heard $1\frac{1}{2}$ "; BC better than AC for the two lower forks; duration of BC fair; Galton $1\frac{6}{10}$; Weber equal. Description of right ear not pertinent. About 2 mm. external to the bony edge of the pars epitympanica, and anteriorly, is such another exostosis as in the previous case. The apex

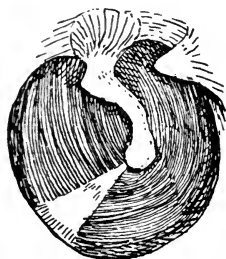


Fig. 1.

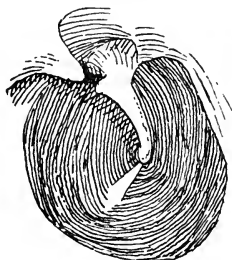


Fig. 2.

is white and hard and directed a little inferiorly to horizontally backward, pointing toward the short process of the malleus; the base is pinkish. The growth is also truly cone-shaped and about 2-2½ mm. in height. The manubrium is not spatulate (see Fig. 2).

The rarity in these two cases consists in the peculiarly sharp cone shape as occurring in the external canal; those exostoses usually occurring in this region being much broader and mostly without the marked vascularity at the base, while those occurring on the pars epitympanica are, in the writer's experience, more or less pedunculated, or else similar to those in the other regions. No member of the New York Otological Society present at the meeting remembers to have seen a similar case. The other peculiarity is the absence of all cause for the growths, except that such might be attributed to the gouty or rheu-

matic diathesis, or possibly to sea-bathing, in the second case.

III.—Case of Marked Vertigo Following Stimulation of the Nerve Endings of the Middle Ear, Without any Change in Labyrinthin Tension.

Female, aged 30 years, with an otitis mediæ purulenta chronica following measles twenty-two years previously. The carious ossicles (malleus and incus) were removed by the writer, and the stapes was in sight. Syringing or pressure on the stapes produced vertigo, but, at times, so does an applicator armed with cotton when applied, under illumination, to regions of the middle ear cavity so far removed from the labyrinthin fenestra that it would be impossible to accept any disturbances of labyrinthin tension. There was no caries of the inner tympanic wall. This case is one evidently supporting Barr's theory. He says, (*British Medical Journal*, May 1, 1897.) "It is very probable that many cases of giddiness from middle ear pressure are due to reflex action excited by irritation of the nerves distributed in the mucous membrane of the ear. There is not only a close relationship between certain branches of the auditory nerve and the center of equilibrium in the cerebellum, but there seems also to be a reflex connection between the nerves of the middle ear and this center, so that when the former are irritated the later is apt to become disturbed."

This patient, on such irritation, loses her balance and staggers, and would fall but for support; the pupils dilate and she has the feeling as though the eyeballs were turning round, though no such motion is perceptible to the observer; there is a feeling of oppression in breathing, with sighing respiration; the heart's action seems to be oppressive, the pulse is not accelerated, but very much weakened; a general feeling of great weakness follows; the head cannot be kept still, but moves to and fro; vision is, for the time being, greatly obscured. There is no twitching of the muscles.

One might think of hysteria or of epileptoid seizure in this case, but the writer thinks he is right in excluding these conditions here, after having very carefully observed the manifestations and causation may times.

138 Clinton St.

DISEASES OF THE NOSE AND THROAT IN RELATION TO GENERAL MEDICINE.*

BY F. DE HAVILLAND HALL.

[Abridged by H. W. Loeb, M. D., St. Louis.]

The lecturer takes the position that the laryngoscope and nasal speculum are of greater importance to the general practitioner than the ophthalmoscope, and that the therapeutic possibilities of the two former are abundant, while those of the latter are very limited. In considering the subject of the lecture, it is proposed to take up the general diseases one by one, and to discuss the nose and throat diseases in relation to them.

As a preliminary to the description of nose and throat affections of the acute specific diseases, the lecturer calls attention to the extreme importance of the nose and throat as portals of entrance of the poisons giving rise to these diseases, and to the evidence that those who suffer from nasal affections are more liable to contract infectious diseases. Excluding water-borne diseases, as cholera and dysentery, almost all other infectious diseases are conveyed by the air, and hence the morbid agent enters through the nose or throat.

Two cases of scarlet fever, following galvano-cautery operations upon the nose, have pointed out the danger of operating upon those who are exposed to infectious diseases. The practical conclusion therefrom is to abstain from operations during epidemics of influenza, or other infectious diseases. The influence of the tonsils and the adenoid tissue in guarding the system against infection is such that the beneficial results of Wilhelm Meyer's discovery will be a lessened amount of danger in scarlet fever and diphtheria, and especially a great diminution in middle ear diseases.

*Lettsomian Lectures, delivered before the Medical Society of London, February 1, February 15, and March 1, 1897.—(*Lancet*.)

Most of the infectious diseases give rise to a catarrhal condition of the upper air passages, especially measles. In some epistaxis results, a common prodromal symptom of enteric fever. The naso-pharynx may be the starting point in influenza, and the larynx is particularly concerned in diphtheria, smallpox and enteric fever.

Smallpox.—The disease is occasionally ushered in with catarrhal symptoms, sneezing, epistaxis, intolerance to light, lacrymation, sore throat, with redness and swelling of the palate and tonsils, hoarseness and salivation. Epistaxis may be profuse in the malignant form. Pustules have been seen in the nostrils, mouth, pharynx, larynx, and even in the bronchia. In the mouth they appear as whitish grey, slightly elevated spots, which soon soften and form superficial ulcerations surrounded by a red zone. Inflammatory swelling and abscess of the palate sometimes occur. The larynx may be the seat of an inflammatory process, or there may be a papular or pustular eruption. In severe cases great swelling of the laryngeal mucous membrane may occur, and ecchymotic spots and sub-mucous hemorrhage have been found. Ulceration, with necrosis and extrusion of the cartilage, followed by stenosis and ankylosis, sometimes result. Diphtheria may be a complicating affection.

Varicella.—A mild sore throat and a varicellous eruption of the buccal mucous membrane have been found by Rondot. In typical cases vesicles, with reddened bases, may be seen on the palate; on the lips, tongue and cheek small round superficial ulcers occur. Rarely is the eruption found in the larynx, in one case the symptoms being mistaken for those of laryngeal diphtheria.

Measles.—The sneezing and running of the nose, which are the earliest premonitory symptoms, indicate the existence of acute nasal catarrh, which generally disappears with the rash, though, through unfavorable surroundings, it may be continued as a chronic purulent rhinitis. The discharge, at first clear and watery, soon becomes mucopurulent and excoriates the upper lip. Epistaxis occurs, and occasionally is a menace to life. Wolff considers that the accessory cavities are always affected, a statement which is to be taken with considerable allowance, in view of the

rarity of acute affections of these cavities. The eruption almost invariably appears on the roof of the mouth, preceding that on the skin. In delicate children severe stomatitis and cancrum oris may develop. The tonsils and pharyngeal mucous membrane are generally inflamed, and rarely the inflammation spreads to the eustachian tube. Laryngeal catarrh, with hoarseness and irritable or croupy cough, occurs, and, in rare cases, symptoms of laryngeal obstruction may be discovered. Ulceration of the laryngeal mucous membrane, abscess, edema, complete aphonia, membranous laryngitis and laryngeal paralysis are among the rarer complications.

Rotheln—German Measles.—Slight nasal catarrh, sore throat resembling that of the early stage of scarlet fever, moderate swelling of the tonsils, are the concomitants of this disease.

Scarlet Fever.—In severe forms the nose and nasopharynx become affected by extension from the pharynx and the eustachian tube, followed by otitis media and its sequelæ. At the commencement the inflammation of the mucous membrane may be catarrhal, but later it becomes muco-purulent, filled with streptococci, whose absorption results in cervical adenitis and abscess, purulent otitis media, endocarditis, pleurisy, etc. If the nasal discharge occurs during convalescence, it should be bacteriologically examined, as post-scarlatinal diphtheria may attack the nasal passages primarily or exclusively. The lecturer doubts the frequency of sinus involvement. Membranous sore throat may appear (1) during the period of eruption, (2) during convalescence, or even later. In the former instance, though it be whitish grey, thick and adherent, and scarcely to be distinguished from the diphtheritic membrane, it is due to streptococci. It does not spread to the larynx and does not recur. In the latter instance (2), the membrane contains the Loeffler bacilli, accompanied by streptococci, and it is, therefore, a grave complication. Diphtheria may occur as a complication of the early stage of scarlatina, but this is a rare mishap. Dr. Goodall thinks that diphtheria is introduced into certain hospitals from mild cases of diphtheria inadvertently admitted as scarlatina, and he doubts the susceptibility of scarlatinal cases for diphtheria.

Laryngeal complications of scarlet fever, other than those due to the accompanying diphtheria, are rare; however, ulceration, fixation of the vocal cords, arthritis, and anky-osis, have been observed.

Whooping-Cough.—Almost always begins with a catarrhal stage, and epistaxis is common. There is a difference of opinion as to whether there are any constant changes in the larynx.

Influenza.—The micro-organism of this disease, almost certainly that described by Pfeiffer, seems to attack the mucous membrane, which almost always bears the brunt of the disease. The nose being the chief portal of entrance of the specific bacillus is early affected, shown in the excessive sneezing, obstruction, profuse discharge, epistaxis, anosmia, parosmia, which are frequent occurrences. Other complications are acute inflammation of the antrum, nasopharyngeal inflammation, otitis media, acute follicular inflammation of the pharyngeal tonsil, vesicular eruption of the palate, acute pharyngeal catarrh, the mucous membrane being edematous and purple in color; follicular tonsillitis, with or without peri-tonsillar mischief; phlegmonous pharyngitis, membranous exudation upon the palate, laryngitis of all degrees of severity, sometimes hemorrhagic infiltration of the cords (Fraenkel), ulceration of the vocal cords, swelling of the ary-epiglottic folds, abscess of the larynx, paralysis of the larynx, the most common being that of the adductors and tensors.

Enteric Fever.—In enteric fever there is a tendency to a catarrhal state of the mucous membranes. Deafness, resulting from extension of the catarrhal process to the tubes, and their consequent occlusion and epistaxis, are common. The latter is an early symptom. Buccal ulcerations, oval or round in shape, with regular or undermined margins, occur, and, according to Tripier, they run a course absolutely parallel with the intestinal lesion. Devic has found them in one-sixth of the cases; they do not affect the prognosis and they are to be treated with antiseptic lotions. Erythema of the pharynx and enlargement of the tonsils are early symptoms, pharyngeal ulcerations are unusual and herpetic eruptions of the mucous membrane of the pharynx and mouth are occasional, according to Morrell

Mackenzie. A secondary diphtheritic deposit, which may occur in the third week, is a serious, and fatal, though rare, complication. The laryngeal complications are not severe, as a rule, until the third week, being of the type of a mild laryngitis, slight injection of the larynx, and increased cell-proliferation. In the third week the symptoms, hoarseness and feebleness of voice, dyspnoea (chiefly affecting inspiration), pain and dysphagia, appear. Swelling of the arytenoids, and of the ary-epiglottic folds, and some ulceration, may be found upon laryngoscopic examination. Increasing dyspnoea may require tracheotomy, and death may result from a laryngeal ulcer, spreading down into the connective tissue and giving rise to subcutaneous emphysema. The chronic variety generally occurs during convalescence, the patient presenting the usual signs of laryngeal stenosis. If recovery takes place without tracheotomy, some trouble in connection with the voice and breathing may result from cicatrization of the ulcerated parts.

Another class of cases, to which the name of laryngo-typhoid has been applied, is that in which the poison of typhoid is, at the onset, focused on the larynx, so that the symptoms of the local affection may, up to the end of the first week, so completely mask the underlying febrile state that the diagnosis cannot be made until the characteristic eruption and other symptoms appear. Dr. P. Watson Williams reports five cases pointing to the possibility of typhoid being communicated by the breath. This method of communication is, of course, most likely to occur in laryngo-typhoid. Patients, with any previous tendency to laryngeal affections, seem to be more liable to laryngo-typhoid than others.

Edema of the larynx may occur as a result of any of the laryngeal complications of typhoid. Paralysis of the vocal cords may occur. Lublinski has seen five cases, in one bilateral abductor paralysis, in three paralysis of one recurrent nerve, and in one paralysis of both recurrents. The paralysis may be due to pressure by enlarged glands, thickened pleura, or the existence of anterior polio-myelitis, or a peripheral neuritis due to toxins must be assumed.

Dr. Kanthack and Dr. Drysdale recently read a paper based upon the post-mortem records of sixty-one cases. In fourteen there was a loss of substance in the larynx, and, as in eight cases the larynx was not examined, ulceration was found in 26 per cent. of the fatal cases. This shows a greater per cent. than Hoffmann's figures quoted by Fagge and Pye-Smith. According to Kanthack and Drysdale, the ulceration is frequently seen over the tip of the edges of the epiglottis, and in the neighborhood of the processus vocalis. Dittrich assumed that they were of decubital origin, Rokitsansky pronounced in favor of their typho-genetic origin, which, however, clinical evidence and recent bacteriological examination tend to disprove. The writer inclines to the view of Kanthack and Drysdale that they are due to fresh infections with pyogenic organisms, gaining a foothold on debilitated tissues, although it is not denied that, in an individual case, the typhoid bacillus may have escaped and caused the lesion. In discussion, Dr. Jobson Horne noted that, in some instances, the laryngeal ulcer proved to be of a tuberculous nature from which he concluded that typhoid may be a possible etiologic factor in laryngeal tuberculosis, and that the tuberculous diathesis may be an etiologic factor in typhoid ulceration of the larynx. In typhoid ulcerations of the larynx there is a tendency to suppuration about the cartilages, leading to necrosis and extrusion, and to destructive changes in and about the crico-arytenoid joints.

Erysipelas.—Chronic nasal affections play an important role in the production of facial erysipelas, and hence the orifice of the nostril is the favorite starting point. Erysipelas of the pharynx and larynx has been much better understood since the streptococcus erysipelatis has been recognized as the cause of the disease, and when this bacterium is proved to be identical with the streptococcus pyogenes, it will be still more simplified. The writer favors the view of Semon, who maintains that erysipelas, phlegmonous pharyngitis, angina ludovici and similar conditions are modifications of the same process, differing in their virulence or place of development.

Mycosis Fungoides.—The writer, in 1895, reported the first case in which the tumors were found on the posterior

and lateral walls of the pharynx and on the left arytenoid.

Rheumatism.—While Freudenthal describes rheumatism of the nose, the writer has not been able to assure himself of the causal relation of rheumatism to nasal affections. Existaxis, frequently seen in acute rheumatism, is almost invariably due to salicylate of sodium. Lacunar inflammation of Luchka's tonsil is sometimes due to rheumatism. Pharyngitis is a common complication of rheumatism and usually precedes the articular pain, though sometimes it appears after the disease has manifested its presence. The rheumatic origin of tonsillitis is now fully recognized, and while cases do occur in which endocarditis and pericarditis occur, they are rare. Suchanek claims that acute multiple articular rheumatism is an infectious disease which runs the course of an attenuated pyemia, the infection entering through "Waldeyer's ring." Sometimes rheumatism affects the muscles of the pharynx, giving rise to pain in the pharynx, aggravated by swallowing, which is readily relieved by salicylates. The larynx is seldom affected, yet the writer includes swelling of one or both ary-epiglottic folds accompanied with pain on deglutition in patients otherwise affected with rheumatism. Rheumatism of the crico-arytenoid articulation is well recognized, and cases have been reported by various authors.

Gout.—Tophi are found in the skin of the nose. In hay fever there is much to be said about the gouty origin, and attention to the general health is of great service in the treatment of the paroxysms. The pharynx is frequently the seat of trouble in gout, and the appearance of the gouty throat is characteristic, the soft palate, fauces and posterior wall of the pharynx presenting an engorged, congested appearance. Gouty deposits are found in the crico-arytenoids (rare, according to Norman Moore), upon the arytenoid cartilages, in the cords and crico-arytenoid ligament.

Rheumatoid Arthritis.—Casselberry has recorded a case in which the arytenoid joints were affected.

Leukemia.—Several cases of laryngeal stenosis, due to leukemia, have been reported. Leukemic infiltration of the larynx is a grave complication, usually requiring tracheotomy, and soon followed by death.

Hodgkin's Disease.—Edema of the pharynx and uvula, swelling of the epiglottis and ventricular bands have been observed.

Lymphatics.—Paralysis is sometimes due to a swollen lymphatic gland.

Hemoptysis.—This symptom, which is often one of great anxiety, may be due to hemorrhage from the gums, varicose ulcer on the posterior surface of the septum, small ulcers and vascular rupture in hypertrophied tonsils, enlarged vessels in pharynx, varices on the tongue, dilated vessels and ulceration of the larynx.

Bronchitis.—Those who suffer from nasal stenosis are especially liable to bronchitis, and therefore it should be relieved.

Asthma.—While it is claimed that asthma is usually dependent upon nasal disease, the writer has never been able to cure a case of asthma by removal of polypi. In addition to polypi, other conditions are found associated with asthma, such as spurs and crests upon the septum, hypertrophic and atrophic rhinitis and adenoids.

Emphysema.—Any of the various causes of nasal obstruction may, as a result of pharyngeal and laryngeal catarrh and consequent irritable cough thereby produced, give rise to emphysema. The writer has seen the progress of an emphysema checked by an amputation of the uvula, also by treating granular pharyngitis.

Pneumonia.—The writer believes that pneumonia, like acute rheumatism, may follow tonsillitis.

Shape of the Chest.—Any interference with free nasal respiration in early life will give rise to a characteristic deformity. Adenoid vegetations, rather than hypertrophied tonsils, are the most common cause. Tubby gives the following as the changes in the thorax: "The chest is bulged at its upper and middle part and retracted in its lower part and excavated. The sternum is not so keel-like as in rickets and the lateral vertical grooves are absent. The antero-posterior diameter is increased while the transverse is diminished."

Diseases of the Circulatory System.—Infective endocarditis may have a tonsillar origin. Von Stein claims cardiac neuroses are often due to hypertrophy of the inferior tur-

binals and that the neuroses disappear after turbinal cauterization. Tachycardia and also a slow pulse may result from intra-nasal diseases; the former has been observed to follow excision of the larynx.

Exophthalmic Goitre.—The symptoms of exophthalmos, palpitation and goitre have been known to disappear after removal of part of and cauterization of the turbinates. Improvement has followed the relief of various other intra-nasal affections, especially polypi.

Aneurysm.—When the left cord is immobile in the cadaveric position, one must first think of pressure of an aneurysm of the aorta upon the left recurrent. It is only after this has been excluded that other paralyses need be considered. The first effect of recurrent paralysis is to cause abductor paralysis on the affected side, and as this condition presents such slight symptoms, it is frequently overlooked where a laryngoscopic examination is not made. When the adductor fibres become implicated the cord assumes the cadaveric position and change in the voice becomes marked. In 16 of the writer's private cases all were males from 29 to 61, in one there was bilateral paralysis of the abductors, in eight the left cord was in a cadaveric position, in five there was impaired movement (loss of abduction) of the left cord, and in two the laryngeal appearances were normal. The right was only affected in the cases of bilateral paralysis. If the sac of the aneurysm involves the innominate artery the right recurrent may be implicated or the trachea may be displaced by the aneurysmal tumor in such a way that its convexity may press on the right recurrent and pneumogastric, causing paralysis of the right vocal cord. It is sometimes possible to recognize the direct pressure of an aneurysm upon the trachea by means of the laryngoscope.

Diseases of the Digestive System.—Chronic gastric catarrh may be kept up by fetid secretions from the nose and naso-pharynx being swallowed. The writer has frequently seen symptoms of dyspepsia disappear after the nose and accessory sinuses have received attention. The stomach and liver influence without doubt the state of the pharynx although there is still considerable discussion on the subject.

Disease of the Liver.—Severe epistaxis is an early symptom of cirrhosis of the liver and hemorrhages and ecchymoses of the mucous membrane of the pharynx and larynx are sometimes found in cirrhosis and cancer of the liver, also in acute yellow atrophy.

Bright's Disease.—Epistaxis is a frequent symptom of chronic interstitial nephritis and is sometimes met with in other forms of Bright's disease; therefore it is wise to examine the urine in cases of abundant or frequent epistaxis. The bleeding is dependent upon altered blood state, changes in the vessels, cardiac hypertrophy and increased arterial tension. While the exact relation of Bright's disease and edema glottidis is still a matter of discussion, the probable explanation is that Bright's disease determines the onset of the edema in cases in which, under ordinary circumstances, the local irritation would have been too slight to have caused it.

Locomotor Ataxy.—Associated nasal conditions are rare though there may be hyperesthesia of the nasal mucous membrane inasmuch as laryngeal crises may at times be elicited by irritation of the nasal fossa. Both the sensory and motor nerves of the pharynx may be affected, resulting in anesthesia, hyperesthesia, paresthesia, motor paralysis or spasm with contraction. Likewise the larynx may be affected, particularly spasms of the adductors, paralysis of the abductors and incoördination of the laryngeal muscles (true ataxy of the vocal cords is one of the earliest laryngeal signs of tabes).

Hysteria.—The writer states that he has never been able to produce hysteria by irritating the so-called hysterogenic zones, as claimed by others. The so-called globushystericus is nothing more than a spasm of the pharyngeal muscles. Hysterical paralysis of the pharynx muscles by causing dysphagia may give rise to a suspicion of malignant disease, but the diagnosis is established by use of the esophageal bougie. The curious condition known as inspiratory spasm is occasionally seen in hysterical persons, and another form of spasm is the "barking cough of puberty."

Neurasthenia and Melancholia.—The tendency has been to exaggerate the effect of nasal lesion in the production of reflexes, still it is not to be denied that in neurotic patients, symptoms of a reflex nature subside after appropriate nasal treatment.

Headache.—Almost all nasal affections present headache as a symptom; the chief causes, however, are nasal stenosis induced by hypertrophy of the turbinals and deflection of the septum.

A CASE OF ABSCESS OF THE TEMPORO-SPHENOIDAL LOBE PRESENTING UNUSUAL FEATURES. — OPERATIONS. — RECOVERY.

BY JAMES BELL, M. D.,

MONTREAL, CANADA.

William Reid, aged 28, admitted August 30, 1895, to Dr. Buller's ward, Royal Victoria Hospital.

History.—Six years ago patient's ear first troubled him. It suppurated and left a permanent perforation of the membrana tympani. Since that time his ear discharged occasionally. Present trouble dates from July 1, 1895, when symptoms of pain, raised body temperature, headache, attracted attention to the mastoid, which was tender and presented evidence of suppuration, at one time so superficial that his doctor wanted to incise in the expectation of reaching pus without entering the bone.

Condition on Admission. — August 30 — Considerable redness and tenderness over mastoid, and inflammatory condition extending into neck. A free purulent otorrhea. Suffered considerably with headache, but rested fairly well at night.

September 1—Dr. Buller trephined the mastoid, but was unable to find pus, although going as far forward as the tympanum.

September 2—Intense headache. High fever, 104°. Vomiting and beginning delirium.

September 4—Delirious in a quiet way. Vomited six times. Retraction of head. Neck quite rigid.

September 5—Photophobia, stupor and subsultus tendinum.

September 6—Same, with short shrill cry every few minutes.

September 7—Less crying. Less headache. Disposi-

tion entirely changed from that of a particularly quiet, modest man to that of an extreme boaster.

September 8—Pulse become slow (60). Temp. down, 99½. Dull mental condition. About this time paralysis of left side of face noticed. Retraction of neck still marked.

Transferred to Dr. Bell's Care.—September 9—Was in the following condition:

A tall, thin young man of wiry build, with a condition of intelligence improved from what it had been for a few days, but still noisy and talkative at times, wanting to get up, etc.; but can answer questions quite rationally. Severe headache on right side. Fundi normal. Movements of face weak on left side; retraction of neck prevented flexion of head. Noticed for first time, on morning of 9th, that the power of the left arm was almost gone—extensor paralysis at wrist with very weak flexion; at elbow very poor flexion with fair extension. Sensation impaired all over left arm. Power in left leg unimpaired. Pulse 50 to 60. Respiration normal. Over right mastoid region is the wound of first operation. Syringing through auditory canal causes flow of fluid from mastoid wound. There is subsidence of the inflammatory condition which had existed in neck below tip of mastoid, but with slight tenderness still remaining.

Operation.—September 9. Mastoid incision continued upward to parietal eminence, and an incision at right angles to it, passing forward from its center. Small piece trephined away one inch above zygomatic ridge, and opening enlarged by rongeur forceps. On opening through dura mater a flow of pus occurred (over 3 1). Rubber drainage tube inserted, and was brought through skin in front of ear. Trephine tore away a branch of middle meningeal artery, from which hemorrhage was found difficult to control; forceps were left applied. A few sutures with iodoform gauze drain from behind.

September 10—Slept well. No pain. Can raise forearm and partially flex fingers. Face improved.

September 11—Rested well. Paralysis of extensors of wrist almost gone. Can flex elbow and extend it; can raise arm from shoulder.

September 12—Paralysis almost gone. Slightly restless. Dressing. Tube aspirated showed brain matter. Some pus drained out along forceps.

September 16—For past three to four days patient has been drowsy most of the time, though at times is cranky, difficult to manage, wanting to get out of bed, etc. Answers questions rationally, but takes a long time to do so. Restless at night lately. Second dressing; forceps removed and tube shortened.

September 19—Patient has been restless at night and drowsy in morning; objects to being disturbed. Headache continuous; bowels much constipated. Quite rational, except on matter of getting up. Muscular power in arm and face quite restored.

September 21—Excessive headache past two days. Slow cerebration. Difficult to rouse now.

September 23—During past night delirious. Tore off dressing. Headache. Prominence noted at dressing.

September 24—Quieter night. Beginning optic neuritis.

September 28—Optic neuritis advancing in both eyes. Severe frontal headache past two days in mornings. Quite rational. With all this, no rise in temperature.

September 29—Painless night. In afternoon became again delirious.

September 30—Dull and stupid. Pulse 48. Respiration 11.

Third Operation.—Wounds reopened and two abscess cavities found in temporo-sphenoidal lobe, one very small, the other about the size of a walnut. Rubber drainage tube inserted and attached to skin.

October 3—Has been sleeping every night and is quiet and free from pain. Pulse 88. Temperature up a little.

October 10—Has slept from 9 to 6 every night. No pain. Mental condition normal now.

October 13—Tube removed.

November 4—Discharged, with small sinus still present at lower end of wound. Has steadily improved in mental and general condition.

Bacteriology.—Cultures from abscesses at both operations showed pure growths of the streptococcus pyogenes.

Readmitted.—January 17, 1896—Complaining of having had a fit a few days ago, and of a discharging wound in line of old scar.

History.—Since leaving hospital sinus has persisted in front of ear, with slight daily discharge, of late markedly

less. Three weeks ago a small fragment of bone came away through small opening in line of scar behind ear; after this it closed up. After going home he was nervous and irritable for three weeks, but improving all the time. Since then he has done light work in the store, but no mental work.

On Tuesday, the 14th inst., after a heavy meal,, he fell down suddenly in a fainting condition and was unconscious for some time. Vomiting followed, and headache. Felt well since. Patient thinks his mental condition fully as good as ever it was, but his mother finds him more hot-headed and self-willed than formerly.

Present Condition.—Small sinus. Probing reveals several small loose fragments of bone. No tenderness.

Operation.—January 28—Sinus enlarged. Finger introduced enters cranial cavity and feels contracted remains of old abscess cavity. Long tube introduced well within cranial cavity.

January 29—Felt splendid all morning. Slight nausea at noon and vomiting at 2 p. m. At 2:45 p. m. became suddenly livid without any warning and went into a short tonic spasm (almost opisthotonus), followed rapidly by clonic convulsive movements of legs, then of arms. Deep cyanosis. Patient turned on left side. Pulse 120, and regular. Slight frothing at mouth. Pupils slightly dilated and equal. Lasted two minutes. For ten minutes after breathing was very stertorous and noisy, and patient in deep coma; tongue protruding; spitting. At 3 p. m. vomited. At 3:30 p. m. conscious, rational, and feeling splendid. During same evening another similar attack. On February 2 another slight one, without loss of consciousness.

March 7—Tube removed; discharge now very slight.

March 21—Has been feeling well all along. To-day without prodromata, another fit, similar to former, and with conjugate deviation toward right side.

April 7—Discharged. Sinus still discharging pus, but presumably from superficial tissues.

N. B.—Dr. Keenan saw patient June 30, 1897. Latter says his memory is a little weak, *e. g.*, can act as floor-walker in store, but not as clerk. Had only had one fit during summer of '96; none since then.

OTITIC CEREBELLAR ABSCESS.

DR. PAUL KOCH.

Translated and abridged by Drs. H. A. Alderton and J. Ketterle,
Brooklyn, N. Y.

Let me add to the nine cases already operated upon, a tenth case, and that a successful one.

Hermína H., age 16, otherwise healthy, had a left-sided otorrhea for some time, apparently following measles. At times the discharge would cease, this being followed by pain, and sometimes swelling behind the ear. The patient went about her work, and the discharge soon resumed its flowing more vigorously, and pain and swelling disappeared. A similar phenomenon was an annual occurrence, and did not miss coming in June, 1895. This time discharge did not appear, and pain and swelling were so severe as to cause patient distress, and she became weak. On the sixth day, she was compelled to go to bed, the headache became worse and spread over the entire head, the patient became dizzy on sitting up; on the tenth day, vomiting, which had no relation to food, set in. On July 9, the twelfth day of her illness, I was called in by Dr. Thye, and saw the case for the first time.

Present condition of patient:—Well built, emaciated, lips cracked, teeth coated with sordes, tongue dry and coated, temperature raised, according to touch. She is conscious, but answers indistinctly and slowly in monosyllables. She is sleepy and is uninterested, and with groans, complains of pain over whole head. Light and noise distress her. Appetite gone, vomiting frequent, and constipation for five days which resists cathartics. Pulse 52, small and weak. Resp. 28, and superficial. Slight, but positive and painful stiffness of neck. Pupils half way open, reacting to light; movements of eyes free; no nystagmus. Background of eye is normal, but vessels are distended and distorted. Paralysis and disturbance

of touch are absent. Patellar reflexes were not noted. Left ear is filled with fetid pus, which, when wiped away, disclosed abundant granulations in the middle ear, but nothing is to be seen of the ossicles. Whispers are not perceived. Mastoid seems normal; percussing at posterior border of mastoid, we find a tender spot. Nothing abnormal at jugularis internus. Right ear is healthy. We assumed an extradural abscess of posterior cranial fossa. No reason to believe a complication of sinus thrombosis. Meningitis could not possibly be excluded, still the temperature at the time was not raised, and sensation was normal. The peculiar state of the sensorium, and the rapid and extreme emaciation directed our thoughts to complicating cerebellar abscess, and many of the remaining symptoms belong to extradural abscess of the brain.

On the way to the hospital, a journey of three-fourths of an hour, patient collapsed, and was restored toward evening, only after free use of stimulants, to such a degree as to be ready for operation in a half narcotic condition. Temp. 36°, pulse 56.

9-VII-95—Operation: At 0.5 ctm. depth in the intact bone, one comes upon a pus-soaked tissue, and opens into the posterior fossa which is distant 1.5 ctm. from the posterior auditory wall. Immediately an ounce of thin, grayish-yellow fetid pus pours forth. The dura is extensively lifted up from the os petrosum, covered with a thick smeary coat, but not pulsating. The antrum mastoideum was opened at the normal situation; it was somewhat large, filled with granulations, pus and yellowish particles of broken down tissue. After clearing away the debris, there was seen on the floor of the antrum, at the point where it joins the posterior wall, a small fistula, filled with granulations. The rest of the antrum was intact, and no further caries was to be found. The opening in the posterior cerebral fossa was enlarged to reach this opening or fistula. The sigmoid sinus was not visible and was not even apparent on pressure of the jugular.

The dura was cleared and the sinus was sought for, and a small opening made into it. It was empty, save for a healthy thread-like clot which was situated in a niche. A sound introduced into the transverse sinus found no ob-

struction, and no blood followed. Operative treatment of the middle ear was postponed, owing to the failing condition of the patient.

The immediate result of the operation was good. The pulse rose to 64, headache and vomiting disappeared, appetite reappeared, she slept well, and was soon well enough to give a good account of herself.

10-VII. Evening temp. 39.4° , pulse 84, some headache.

11-VII. Temp. 36.6° - 38.4° , severe headache and quite restless. Dura had raised and pressed itself against the opening, showing retention. Spiculæ of bone were removed from the edges of bone and iodoform gauze put in. Following this, temp. was 37.8° , headache disappeared, general condition of patient good.

12-VII. Temp. 38.9° - 38.8° . Patient was restless, had delirium during the night, and pulls at bandages.

13-VII. Temp. 37.1° - 39.8° . Very restless, but rational; severe headache. Slight retention behind the gauze; careful douching with boric and salicylic acid solution.

14-VII. From this time on, daily intermittent temp. between 35.5° in morning, 39° . In evening, with corresponding pulse. Patient is restless by day, more so at night. Patient is rational, severe diffuse headache, neck is beginning to get stiff.

15-VII. The dura at the opening is soft, and on attempting to lift it from the edge of the bone with a spatula, it tears and exposes a portion of the cerebellum, which looks normal.

17-VII. Upon pressing the somewhat prolapsed cerebellum, there exudes a drop of thick, yellow, odorless pus from between dura and brain, at the situation of the external auditory meatus. Meningitis? Perhaps, as we can also in this disease, bring out pus-drops on pressure, even if the visible arachnoid is not distinctly inflamed. The purulent collection may be situated more in the middle, affecting the cerebellar tissue. The severe headache and restlessness would point more to meningitis. Brain abscess? We had taken this into consideration, but now we had a small amount of stiffness of the neck, and the sinus remained collapsed. It was not thrombosed, but compressed. The fever in either case would be doubtful.

In the following days, the further and looked for symptoms of meningitis, which was suspected since the 12th of July, did not appear and so it was granted that the diagnosis be cerebellar abscess.

19-VII-95.—Operation for abscess: With the assistance of Dr. Schwanhäuser, I enlarged the bony opening in the posterior fossa, near the sulcus, downward, nearly to the inferior semi-circular canal so as to have an opening the size of a 50-pfennig coin. The dura was opened to the sinus and turned back. The visible cerebellar tissue was normal, except for slight hyperemia. With a small lance, a puncture was made to the rear and outward and below; no result. Then we punctured in the middle to and fro, without result, except to squeeze out some drops of pus between the dura and the brain. The abscess could not be situated in the lateral half of the cerebellum, as that portion lay before us, and the lance could not miss it. We concluded that the abscess lay in the median half of the cerebellum, whence the pus seemed to come. As the supposed abscess must thus far have been punctured, I introduced a small bent probe carefully between the dura and the brain, in the direction of the apex of the petrous bone. Near the internal meatus we felt a soft tissue, and upon palpating lightly with the sound, it yielded, and thick pus made its appearance. A small forceps was introduced between the lobes of the brain, and a good sized teaspoonful of pus was drained off. The abscess cavity must have been situated in the most anterior and median part of the inferior surface of the hemisphere near the tonsilla of cerebellum. Its walls felt smooth and soft. The point of a Nelaton probe was introduced, the cavity was washed out with iodoform ether and covered with iodoform gauze.

Following the operation the patient was more quiet, the stiffness of neck disappeared, and appetite returned. Bandages were changed every second day. At the first change only was there a little secretion at the opening. As the drainage tube remained dry after that, it was removed on the seventh day. The brain prolapsed, lay against the posterior bony wall of the auditory canal and covered itself with good granulations. No other change took place. The intermittent temperature and headache

remained, every movement of head was painful, and a severe diarrhea set in. The source of the pus could not be found. July 28 we discovered a swelling on the right side of throat; the anterior right side of the arch of the palate was edematous and showed a small white erosion. An incision was made at the inner border of the sterno-cleido-mastoid to ascertain, at the same time, the condition of the right internal jugular. This was intact, pus was found behind the vessels and was pushing toward the triangle of the neck. Counter-opening, drainage and rapid convalescence.

14-VIII-95 Resumé. The prolapse was treated properly; the granulations in the mastoid and antrum were removed, and the whole bone was well examined. No disease was visible, and the aditus was free from caries. The middle ear was curetted from the auditory canal, and as no caries was present, we refrained from radical operation. The prolapse did not return. After weeks of observation on the antrum and surroundings, the wound in the mastoid was allowed to close up, no suspicious symptoms being present. The patient goes about her work (ironing) since the middle of September, and has no symptoms of any kind. The treatment of this case was tedious, as there was a tendency toward stenosis. Since November, 1895, the middle ear is healed.

November, 1896. The patient is healthy and does not complain, despite her hard work at the ironing board. She enjoys dancing now, which formerly made her dizzy, and which had been forbidden. The ear is dry and free from crusts. The mastoid shows a small, well-formed cicatrix; no prolapse.

Herewith an appendix containing statistics of 105 cases, taken mostly from English and German works:

Generalia.

Cerebellar abscess before the fourth year, has been observed out once up to this time, and that by Moos. It occurs very seldom in the first ten years of life; most frequently between 10 and 30, and after the thirtieth year

a very rare occurrence. Oldest patient was a female, age 55. These were observed:

ABSCESSSES.		
	<i>Cerebellar.</i>	<i>Cerebral.</i>
0-10 years	- 11	18
11-20 "	- 33	17
21-30 "	- 35	23
Over 30	- 19	21
	—	—
	98	79

(According to Körner's statistics.)

A correct comparative table between otic cerebellar and otic cerebral abscess is not possible, owing to small returns of the cerebellar type in our collection. Therefore we depend upon reports of pathological institutions. Newton Pitt, in 9,000 autopsies at Guy's Hospital in London, found 14 otic abscesses in cerebrum, three in cerebellum and one in pons. Treitel, 6,000 autopsies, Charity Hospital of Berlin, four cerebral and three cerebellar abscesses. Out of 8,425 cases of disease of middle and inner ear that occurred in the Prussian army from May, 1881, to December, 1887, there occurred, according to Schwartz, three cerebral and four cerebellar otic abscesses.

I believe that otic abscesses are nearly as frequent in the cerebellum as in the cerebrum. Cerebellar abscess occurs twice as frequently in males: thus, in 96 cases, males 66, females 30. In first 10 years of life, however, females 6 to males 4.

Pathology and Pathological Anatomy.

Size-92 cases.	{	33 large.
	{	59 small.

Large, about size of hen's egg, rarely involving two-thirds of hemisphere, and infrequently the vermiform process. The largest abscess reported (Gribbon) involved right hemisphere, two-thirds of vermiform process of left hemisphere. Several have been reported involving one entire hemisphere.

The small abscesses range in size from a walnut to pigeon egg, being rarely as small as cherry or almond.

Situation.—Mainly in one hemisphere. Even in large abscesses, the vermiform appendage is rarely involved; more rarely abscess extends into the other hemisphere and pons. Softening of the brain, even in connection with small abscesses, more often reaches the middle line.

Authorities agree that cerebellar abscesses generally involve the anterior part of the hemisphere. Only Ludewig has observed in a case with multiple abscesses, an abscess in the posterior, superior median; Hutton and Wright in the posterior, inferior median section; Pitt an abscess in the neighborhood of the torcular herophili.

In large abscesses it is not as necessary to know the exact situation as it is in small abscesses. Macewen and Körner think that the majority of abscesses are situated in direct contact with the sulcus sigmoideus. Bergmann is more specific: "The cerebellar abscesses lie with rare exceptions, in that portion of the cerebellum bordering on the fossa sigmoidea, the lobus quadrangularis and semilunaris." The exact situation of 43 abscesses were known. Twenty were situated in the lateral half of the hemisphere, near the sinus sigmoideus; some directly behind it, some more internal, some more external, but so that the abscess could be reached from both sides of the sinus. In 21 cases the abscess was in the middle of the anterior margin of the under surface and in the median half of the cerebellum; near the inferior vermiform process, pons and medulla. In two cases it lay in the medullary substance ("Marklager") of the hemisphere. We cannot tell the place of beginning of large abscesses, but we can take for granted that the terminal point bears a relation similar to that of small abscess. As only three cases have been situated in the superior half of the cerebellum, we arrived at the following conclusion; Otic cerebellar abscesses lie in the forward and lower part of the hemisphere, being equally divided in situation between the lateral (lobus semilunaris inferior and adjoining part of cuneiformis) and median halves (remainder of cuneiform lobe, tonsilla, flocculus and pedunculus cerebelli ad pontem).

The cerebellar abscess does not to any extent prefer one hemisphere to the other. Out of 103 cases, 53 in the right,

48 in the left, and two cases in both hemispheres. This list contrasts with Körner's, who writes in the second edition of his book, 37 right sided, and 17 left sided cases. These differences are due to the different fields for the collection of materials. In a series of 45 cases of my own there were more left sided cases.

Age.—(Time of formation of abscess.)

The abscesses following acute otitis media give us the possibility of estimating the length of time required for their formation. We cannot note the exact moment of beginning or of termination. Minimum time, two to five weeks. as calculated from the following cases:

Schwartz 13, XII., 86.—In opening a mastoid process, attempted to introduce a douche between dura and bone of posterior cranial fossa. Severe symptoms followed, and on 27, XII. (two weeks later) a cerebellar abscess opened through a fistula in dura. Toynbee.—Death followed 21 days after scarlet otitis; autopsy showed walnut sized abscess. Friedeberg.—Death, three and a half weeks after beginning of otitis media; autopsy showed walnut sized abscess in both hemispheres. Truckenbrod.—A case lasted four weeks. Jansen.—After five weeks from beginning of otitis media acuta, found (hen's egg size) abscess with a (2 mm. thick) vascular pseudo-membrane.

Peculiarities, Formation and Termination.—The cerebellar abscess is situated close under the cortex, and is eccentric as it absorbs the medullary substance (Marklatger). Perhaps this absorption is slower, or perhaps the medullary substance (Mark-substanz) of the cerebellum acts differently from that of the cerebrum; however, we seldom find such pieces of necrotic brain tissue, as we so often find with protracted temporal abscess.

Contents.—A purulent mass, from consistency of cream to thinner consistency; color, yellow or greenish. Frequently fetid, but free from gas bubbles. In rare cases, blood clots were found.

The origin of otic cerebellar abscess is a subject of controversy. Here two cases of Schwartz are of interest: (1) A healthy man (age 22) became ill 1-III-86, with right otitis media acuta, accompanied by fever and followed by perforation. On 16-III, the perforation closed, patient

felt well save for occasional weakness and headache. On 18-III symptoms of meningitis appeared, and he died on the 19th. Autopsy showed a little basal meningitis, probably coming from a perforation in dura; in the right cerebellar hemisphere, 1 cm. beneath the upper surface, was found a cavity (size of cherry) containing a dark, black, tarry matter and pus. (2) In another case was an abscess, measuring 5 cm. in diameter, and there projected from the wall of the cavity a stump of a blood vessel (length 0.25 cm.) which was plugged up with pus. (3) Davies reports a third similar case: Near two abscesses in the same hemisphere there was a third, which contained brain shreds, blood and pus. In the above mentioned first and third cases we no doubt had recent abscesses, and the blood vessels seemed to have some relation to their formation.

Cerebellar abscesses may be shut off from their surroundings by a capsule, as are temporal abscesses. In 44 cases, 26 with, and 18 without capsule. The capsule is of various construction. It may be a thin coating of granulations, a thin vascular membrane, or a solid white fibrous coat, which will allow the abscess to be enucleated. Sometimes we have a combination of the three in layers. Sometimes the wall consists simply of a condensation of tissues, strengthened by offshoots from the abscess, but not different from the neighboring tissues. The abscess must be of a certain age before it possesses a membrane. A membrane rarely forms following an acute attack of otorrhea, while a membrane is frequently present in cases following a chronic condition, and therefore probably representing a certain period of elapsed time. The abscess, however, does not always behave in the same way in forming membrane, as regards time. Some have a membrane early, while others may take years and then show very little of a capsule. Jansen reports the earliest case of formation of membrane: Five weeks after the beginning of an otitis media acute, and ten days after the beginning of abscess symptoms, he found a vascular psuedo-membrane 2 mm. thick. The neighborhood of an abscess, even where it leads to death, is usually microscopically intact. Sometimes we note a surrounding zone of red or white brain

softening, varying in thickness from a mm. to a cm. Rarely we find the softening involving the whole cerebellum. Sometimes we see small hemorrhages in the zone of softening, but the hemorrhage is not profuse. At times there are found in the softened zone small abscesses, varying in size from a pea to a cherry. These abscesses are probably the offspring of the large abscess, an advance guard, so to speak, that later would coalesce with the main army. Their deep situation would rather point to this origin than to an otic origin. This change in the surrounding tissues seems to have no particular relation to the encapsulated or non-encapsulated abscess. The capsule, therefore, shows a certain stage in the growth of the abscess, but does not positively mean a protection for surrounding tissues. In Dupuy's cases, despite a very thick, intact capsule, the surrounding tissues were soaked with pus to the surface. The capsule sometimes undergoes absorption or tears, and thus the abscess goes on with its destruction. These are not so very rare.

The cortex of the brain offers the abscess an appreciable resistance. The whole development of the abscess, which doubtless begins close under the gray substance, grows downward in the medullary substance (Marksubstanz) and only the neighboring layers of the cortex are destroyed. Thus the whole hemisphere may be a pus-soaked sac, having only a thin and not much changed cortex layer. Cortex abscesses, as we find them in a local purulent meningitis, are much rarer in cerebellar than in temporal abscesses.

Von Beck's case stands alone. In a protracted case of necrosis of petrous bone the dura was to a great extent destroyed, and the destructive process had directly attacked the cortex. In a large number of cases it is shown that the cortex is not easily attacked. The abscess may affect the cortex, and as in these cases a purulent basal meningitis is apt to follow, we are apt to think at the autopsy that the meningitis penetrated the cortex. However, frequently the cortex over the abscess becomes thinner and thinner, till at length a fistula forms. The thinned cortex appears at an operation as slightly congested or edematous; at the autopsy it usually appears dirty gray-green. It rarely

leads to an extensive necrosis, although the cortex may disappear, so that the dura or tentorium becomes attached and constitutes a wall of the abscess. Usually the abscess has but one opening or fistula, and this adjoins the posterior surface of petrous bone; in very large abscesses there may be several openings, or the opening may force the tentorium outward or backward.

When an abscess opens, the pus pours forth into the arachnoid space, and rapidly a purulent meningitis follows, usually involving the base and the spinal column; or a cementing, or growing together, of the meninges precedes the rupture.

The next step is somewhat different in different cases. The pus may form a subdural abscess by spreading between the dura and the brain. This has frequently been noted, especially under the tentorium. Or, and this is frequent, a fistula forms, in the dura at the point of opening of the abscess, or a fistula forms in the thrombosed sinus, the pus follows the sinus, or between the dura and bone, and eventually finds an opening into the petrous portion. This ought to be the means of a natural or spontaneous cure, but it has never so happened. The rupture itself leads to death, or to a fatal meningitis. An exceptional course is the breaking into the fourth ventricle. Two cases of entrance into the fourth ventricle have been reported.

Not infrequently an abscess leads to more or less severe disease of the meninges, without appreciably affecting the cortex. The presence of an abscess under the cortex suffices to produce a meningeal hyperemia, or a sero-fibrinous or purulent meningitis. Here we may note an important accompaniment of an abscess at times, doubtless caused by the presence of the abscess; namely, a serous meningitis that mainly affects the ventricles. We find here all degrees of hydrocephalus internus; distension of the lateral ventricles, this being the rule; sometimes with distension of the third ventricle; sometimes with distension of the several ventricles and distension of Aqueductus Sylvii, and in one case of Macewen's (a child aged 5), there was an extensive flow in the spinal canal. According to the amount of serum, there will be flattening and anæmia of the brain convolutions. This fluid consists mainly of

serum, light colored, occasionally dirty and muddy with floating fibrinous particles, and the soft brain coverings show only occasionally adhesion, or "pasting" together. The amount of fluid is rarely more than one-half to two ounces, although at times it may be so much as to be the direct cause of death. There are two explanations for formation of internal hydrocephalus: (1) Thrombus, or compression of the vena magna, both having been observed in tumors of the posterior fossa. Thrombus has not as yet been found at the autopsy of cerebellar abscess; on the other hand, it may easily be imagined that, also in the contracted space of one of the posterior cranial fossae, the medianly situated vein is compromised. (2) A second possibility would be the inclosure of fissures and canals by compression. We shall see later on that the remote action of a cerebellar abscess very seldom, and only to a small extent, reaches over the median line; much less must we expect to find that the compression, which is the local and limited action of the tumor, will reach over the middle line. Thus, a left-sided abscess may compress all clefts in the left side and the branches of the median fissure; however, all the right side and important parts of the median fissure remain open for free communication, and is sufficient as long as the ventricular fluid has free movement. Imagine compression of a vein, or of the fissure, and we can understand formation of partial hydrocephalus of one or both lateral ventricles. Hydrocephalus internus has been also found with small lateral abscesses, while large abscesses, which extended to the median line, or farther, frequently had no hydrocephalus. Another possibility is that the abscess, on its inflammatory tour toward the meninges, causes a congestion of the plexus, and leads to a plastic exudation that may involve the fissure of the descending horn of the lateral ventricle and Foramen of Monrow.

The abscess may cause edema of the surrounding brain tissue. Although we ought to expect this, it has not often been found at autopsies. Reports of autopsies are silent on this point, but Heimann reports a case in which there was edema and limited softening in the neighborhood of an encapsulated abscess.

Cerebellar abscess may heal spontaneously. We know that abscesses in other regions of the brain may become

calcified, or absorbed, or cystic. The walls of the cavity can come together so that cicatrization occurs. Only one case of spontaneous healing of an otic cerebellar abscess has been noted, and here a thick cicatrix formed.

Autopsies—Of 78 cases show following results:

In 65 cases, where death was supposedly due to growth, etc., of an abscess, we found the following at autopsies:

Meningitis purulenta ex perforatione	-	-	7
Meningitis purulenta infiltrationem	-	-	3
Meningitis purulenta s. sero-fibrinosa	-	-	5
Meningeal hyperemia	-	-	3
Perforation into fourth ventricle	-	-	2
Free perforation, or softening of abscess wall, and nothing else	-	-	5
Progressing encephalitis	-	-	2
Zone of softening of various extent	-	-	7
Edema of brain	-	-	1
Abscess in microscopically intact surroundings	-	-	21
Communication with a dural fistula without further changes	-	-	9
Number of cases	-	-	65

In 13 other cases that died of complications:

Erosion of large vessel	-	-	3
Sinus thrombosis and results	-	-	6
Meningitis following purulent labyrinthine inflammation	-	-	2
Meningitis following extradural abscess	-	-	1
Deep phlegmon of neck	-	-	1

In 20 cases out of 78 various stages of hydrocephalus internus were present, and in five cases so marked as to be the direct cause of death. Three cases of the latter occurred in children (aged 2 to 12) one in female, aged 48; one in young man, aged 15.

Multiple abscesses noted in sixteen cases. Six of these were multiple abscesses in the same hemisphere, two had one in each hemisphere, one had set up metastatic abscesses; seven cases had another abscess either in temporal or occipital lobes.

Condition of Petrous Bone, Dura, Sinus, and Meninges.

It is the chronic form of otitis that usually leads to cere-

bellar abscess. Out of one hundred cases only fifteen followed acute otitis media.

The *causative otitis media acuta* can easily be followed clinically. It leads to a perforation that at times heals up; the ossicles only exceptionally become involved; the mastoid is involved in only one-half of the cases, be the involvement a mastoid pain, swelling or abscess. A peculiar antithesis to this arises upon examining the cavity of the mastoid and the petrous bone. Usually there results a caries and fistula of the posterior surface of the petrous bone; a pachy-meningitis externa follows, having abundant granulation and little pus, and, at times, a fistula in the dura. The sulcus sigmoideus is the usual place of this pathologic change, and thus we find the sinus often thrombosed.

With *chronic purulent disease of the middle ear* there is nearly always caries or cholesteatoma; the changes in the middle ear are usually extensive and marked, often the facial nerve is destroyed; frequently there is a painful swelling at mastoid or a fistulæ forms, or we have before us a lot of destroyed bone that has repeatedly been chiselled and curetted. Thirty-nine out of sixty-three cases showed marked changes in the mastoid that were visible from the surface. The caries has generally reached the posterior fossa; we find on the posterior pyramidal wall, or at sulcus, a smaller or larger opening, with or without granulations. Sometimes, though rarely, we find extensive caries and necrosis. The territory (Terrain) of the carious process extends from the superior to the inferior border of the posterior surface of the pyramid, and from the posterior edge of the sulcus to the anterior edge of the meatus auditorius internus. Occasionally the tip of the pyramid is affected by caries. A usual situation is the sigmoid sulcus, extending from the upper bend to the lower horizontal portion; here it often causes great destruction. More often it affects the median portion of the above mentioned territory. The fistulæ begin at the niche of junction of median and posterior wall of the mastoid antrum, and debouch anterior to the inner edge of the sulcus sigmoideus, sometimes directly beneath the sulcus petrosus superior, at times lower. Or they are connected with the labyrinth,

and, on account of pus formation and caries in labyrinth, they are situated on the posterior semicircular canal, on the median limb of the superior semicircular canal, on the aqueductus vestibuli and porus acusticus internus.

Sixty-nine cases, with close examination of the petrous bone, showed caries:

	Times.
Sulcus sigmoideus - - - -	12
Posterior pyramidal surface - -	24
Posterior surface and labyrinthine region -	5
Labyrinth surface - - - -	3
Sulcus sigmoideus and labyrinth region -	2
Sulcus sigmoideus and posterior pyramidal surface - - - -	3
Extensive caries and necrosis of the entire temporal bone - - - -	3
Total - - - -	<hr/> 52

The twenty-four cases of caries on the posterior surface of pyramid need a further description. These are the cases in which the observer merely spoke of caries, fistula and perforation, without telling exact situation. Probably a small portion of these cases belongs to the sulcus sigmoideus.

These conditions show us the reason for the proportion of right to left-sided cases. From a large number of examinations it is known that, on the right temporal bone, the sulcus sigmoideus lies deeper in the pars mastoidea. Therefore, on the right side, the sulcus lies nearer to the middle ear and its accompanying parts, and thus nearer to the seat of inflammation. The right sulcus has, therefore, more chance of becoming diseased, and, if it is really caries of the sulcus that leads to cerebellar abscess, it should be more frequent on the right side. However, the difference is small.

The caries is not in the sulcus in the majority of cases of cerebellar abscess, but anterior to it; the situation and position and form of the sigmoid sulcus is nearly irrelevant as to the genesis of the cerebellar abscess.

The carious process on the posterior pyramidal surface involves as a rule the dura. Pachy-meningitis externa

develops with granulations and pus that lifts the dura from the bone. At times the pus is abundant, an extradural abscess forms, and in one-fourth of the cases the dura is perforated and dural fistula results. The dura over the carious part is rarely intact; more rarely the dura is diseased, while the posterior pyramidal surface is not changed.

Seventy-six cases, with particular description of the dura:

(a) With caries in the region of the posterior cranial fossa, 52 cases.

Pachy-meningitis externa purulenta (dural fistula in seven), 25 cases.

Large extradural abscess (three dural fistulæ), 5 cases.

Dural fistulæ, without considerable changes in the dura itself, 8 cases.

Sinus thrombosis, partly with fistula, 8 cases.

Intact dura, 6 cases.

(b) Without caries in the region of the posterior cranial fossa, 19 cases.

Pachy-meningitis externa purulenta, 4 cases.

Extra-dural abscess, 1 case.

Sinus thrombosis, 1 case.

Intact dura, 13 cases.

(c) Without description of the petrous bone, but associated with marked alterations in the dura and sinus, 5 cases.

The dural fistula is connected with the carious process on the posterior surface of the pyramid, and its situation will show the situation of the carious process. It is situated at the outer or inner edge of the sinus sigmoideus, or more toward the middle, not rarely at aqueductus vestibuli, at the posterior semi-circular canal, or at the porus acusticus internus. The dural fistula compares in its situation with the abscess fistula, when rupture has taken place. The dural fistula is not probably a result of the abscess, but comes from the caries of the bone, especially as many cases are found where the cortex over the abscess is apparently fully intact, while on the other hand, no case has been found without caries where there were both an abscess fistula and a dural fistula. The reason that the abscess bursts spontaneously in the direction of the dural fistula is probably because of less resistance at that point.

(To be continued.)

A CASE OF SIGMOID AND LATERAL SINUS
THROMBOSIS FROM ACUTE SUPPURATION
OF THE MIDDLE EAR.—OPERATION.—RE-
LIEF.—SUBSEQUENT ABSCESS IN THE
TEMPERO-SPHENOIDAL LOBE OF
THE BRAIN.— OPERATION.—
DEATH.— AUTOPSY.*

BY T. PASSMORE BERENS, M. D.

NEW YORK CITY.

J. B., male, age 20, came to the Manhattan Eye, Ear and Throat Hospital June 10th, 1897, with the following history: Two weeks before he had noticed a slight pain and discharge in his left ear. Two days before his first visit the discharge ceased and the pain became steadily and rapidly worse. On examination the external auditory canal was partly filled with muco-purulent discharge, the removal of which showed a small perforation in the anterior inferior segment of the drum membrane. The drum membrane was congested and slightly bulging. The membrana flaccida was deeply congested, but not bulging. The tissues over the mastoid process were swollen and tender on pressure, but not reddened. The ear was not displaced. Slight vertigo was present. No chill. Temperature 99° F. Pulse 80. Bowels constipated. Calomel was administered and the hot douche and hot applications ordered for the mastoid. For the three days following the patient rapidly improved; the pain and tenderness diminished, the swelling and vertigo disappeared and the patient resumed his occupation as clerk. Thirty-six hours later he returned with severe pain, tenderness and vertigo. Temperature 103 F. Pulse 100. This was at 7 o'clock p. m. At midnight the temperature was 104° F. In the morning there was retraction of the head to the affected side, displacement of the auricle forward, much pain and tender-

*Specimen presented and case reported to the New York Otological Society, November, 1897.

ness on pressure over the mastoid region. Vertigo marked. No pain or tenderness in the region of the jugular vein. Left eye presented an inactive dilated pupil, distension of the retinal vessels and slight optic neuritis. Under ether anesthesia the mastoid was explored, but no pus was found until the mastoid antrum was reached. The quantity of pus was almost insignificant. No necrosis was found, but the parts were decidedly vascular, the wound in the bone bleeding profusely. Carrying the incision backward, the sigmoid sinus was laid bare and was found to contain a firm clot; with the rongeur the sinus was exposed from near the jugular bulb up into the lateral sinus. The vein was opened, but the clot was so firm that a curette was used to dislodge it. The curette was entered before to the jugular bulb, when a return flow of blood was established. Pressure over the jugular controlled this, and the curette was inserted into the lateral sinus back to the torcular, free hemorrhage being thus established. The slit vein was then packed with iodoform and the wound packed in the usual manner. The patient rallied well from the operation. The pupil of the eye reacted to light before he was well out of the influence of the ether. The temperature fell rapidly and at the end of ten days he had made sufficient recovery to be allowed to walk about his ward. On the 19th day after the operation he had a rise in temperature which was ascribed to an indiscretion in diet, and was relieved by a purgative. On the 23d day he was much excited by a disturbance in the ward. This was followed by extreme nervousness and a rise in temperature to 103° F., with profuse sweating, rapid, slightly irregular pulse. Eye ground unchanged from condition on date of operation. Pupil active. Slight retraction of the head to the affected side. Slight occipital pain, nausea and vomiting. All reflexes and cerebration fairly active. Wound perfectly healthy, no pus, no exposed bone. His condition gradually grew worse. It was typically septic. On the 26th day chloroform was administered, the wound reopened, and after careful investigation the parts were found normal. The middle and posterior fossa of the skull were laid open by trephining immediately above the supra-metal triangle. The dura mater was of healthy appearance and not adherent. A medium-sized aspirating needle

was used for exploration of the brain substance. Nothing abnormal was found until the needle entered the region of the left lateral ventricle when about two drachms of discolored serum was withdrawn. This was supposed to have come from the lateral ventricle. The wound was dressed and the patient rallied considerably for a few hours after the operation. The patient then grew rapidly weaker and died 38 hours after the operation. Immediately following the operation there was a spasmodic contraction of the right brow, rythmical with the pulse. This was the only indication of central nervous irritation. The reflexes and cerebation were responsive until a short time before his death.

Post-mortem examination: Permission was given to examine the brain only. Excepting the wound in the bone, from the operations, nothing abnormal was found in the bones of the skull. The sigmoid sinus was found to have been opened almost to the jugular bulb below and upward into the beginning of the lateral sinus. The latter contained a firm clot to the torcular, and at this point there seemed to have been a fresh addition to the clot. The superior petrosal vein was occluded for its whole length by a clot. No pus was found. The pia and arachnoid were edematous, the edema being most marked posteriorly. There seemed to be a marked increase in quantity of cerebrospinal fluid. The brain substance was very soft, although the examination was made only a few hours post mortem. The left temporo-sphenoidal lobe was red and very soft. In the centre of its apex was a small abscess one half of an inch in diameter. It contained opalescent, thin fluid, tinged with red. The track of one of the exploratory punctures was noted passing at the edge of but not entering the abscess. A few small hemorrhagic points were noted in the white matter of this lobe. The ventricles were distended and the velum interpositum was edematous and its veins congested. The mark of a puncture was found near the floor of the left lateral ventricle. Death seemed to have been caused by sepsis combined with edema of the brain, softening and abscess formation of the temporo-sphenoidal lobe.

101 Park Ave.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

Acute Purulent Otitis Media in Children.

1. ALLEN, J. T., Brownsville, Tenn. (*Memphis Medical Monthly*, December, 1897.)

A careful *resume* of acute purulent otitis media in children, including the etiology, pathology, bacteriology and the therapeutic and surgical measures for its relief. The danger of neglecting inflammatory processes of the ear in children is emphasized, and attention called to the importance of a thorough and intelligent examination of these parts.

Scheppegegrell.

Double Syphilitic Labyrinthitis Cured in Seven Weeks.

2. ANDERODIAS, (*Arch. internat. de Laryngol., d' Otol. et de Rhinol.*, September and October, 1897.)

The author reports a case which does not seem to offer anything new or interesting. The patient had secondary syphilis, and showed white plaques on the tympanic membrane. He was treated with small doses of potassium iodide without result, but as soon as mercury was used, all symptoms disappeared.

Holinger

Forced Conservative Treatment of a Surgical Mastoid Case.

3. AUDENRIED, ADA H., Philadelphia. *Philadelphia Polyclinic*, November 6, 1897.)

A typical case of mastoid suppurative inflammation is described by the author, in which a radical operation was refused by the patient. An incision about one-half an inch in length was then made over the mastoid, this giving exit to two ounces of foul smelling pus. Granulation tissue was removed by means of the curette, antiseptic ir-

rigation employed, and the cavity packed with small pieces of iodoform gauze. Complete recovery followed.

Scheppegrell.

Perception of Sound With One and with Both Ears.

AUGIERAS. (*Revue. hebdomadaire de Laryngol., d'Otol. et de Rhinol.*, October 2, 1897.)

The hearing is best in the axis of the meatus, less in front, and least behind the ear. The practical consequence is that in a case of paracusis the aurist may indicate to the patient the cause of his mistakes, and may instruct him to use the good ear in order to judge about the direction of the sound.

Holinger.

What Symptoms Should we Consider Most Important in Deciding as to the Advisability of Operation in Mastoid Disease.

5. BACON, GORHAM, New York. (*Medical News*, June 19, 1897.)

Acute inflammation of the mastoid cells rarely develops without some elevation of temperature, this varying from 99.5 to 100 degrees Fahrenheit. If the patient has had acute inflammation of the middle ear for a week or ten days, and if in spite of treatment there still remains tenderness over the mastoid process, these symptoms are very characteristic of mastoid disease.

The operator should not wait for edema and redness behind the ear, as valuable time may be lost in so doing. Bulging out of Shrapnell's membrane, with drooping of the posterior and upper cutaneous lining of the external meatus, are, in the author's opinion, absolute symptoms of mastoid involvement, and he believes that in such cases the mastoid cells should always be perforated.

Scheppegrell.

Chronic Otitis Media Purulenta—Abscess in the Temporo-Sphenoidal Lobe—Purulent Lepto-Meningitis.

6. BARKAN, San Francisco. (*Archives of Otology*, Vol. XXVI., No. 4.)

A woman, aged 24, who had a purulent discharge from the right middle ear since an attack of scarlet fever in childhood, began to suffer from earache, chills and vomiting. The pain spread over the right temporal region, she became emaciated, her intellect was dull—answering ques-

tions slowly. The auditory canal contained fetid pus. Large perforation of Mt. No ossicles visible. Mastoid distinctly sensitive to pressure but no redness or swelling. Temperature 102° F. Pulse 102.

Under ether the sclerosed mastoid was opened, exposing its cells, the antrum and tympanum. No ossicles were found and the probe failed to reveal any erosion in the tegmen tympani or antrum. The mastoid was then completely chiselled through and the dura exposed over an area the size of a twenty-five cent piece. No pulsation was discernible, and an aspirator was introduced, bringing out half a drachm of fetid pus. The dura was further opened toward the tegmen tympani, and though the brain tissue was necrotic, no more pus was found.

After the operation temperature was 99.8° F., pulse 130. She complained of pain in the right side of the head, in the left arm and shoulder. Next day temperature rose to 103° F. The dressings were removed, and puncturing more anteriorly the needle found pus in the temporo-sphenoidal lobe. A free opening was then made to this abscess cavity, and it was packed with iodoform gauze.

The patient continued to complain of pain, was restless. The temperature reached 105.6° F., and pulse 160. She became comatose and died the following day.

On autopsy a small amount of fetid pus escaped from the region over the posterior part of the temporo-sphenoidal lobe. In this region an area four by three inches was compressed by and covered with pus, the vessels were injected, and there was superficial necrosis.

The middle fossa contained pus beneath the dura. The lateral sinus was normal. In the center of the temporo-sphenoidal lobe was an abscess cavity one and one-fourth inches in length and one-half inch in width and depth.

Campbell.

Permanent Closure of Dry Perforation of the Membrana Tympani.

7. BARNICK, OTTO. (*Arch. f. Orlenh.*, Bd. 42, H. 3 and 4.

If the edge of the perforation be grown over, a spontaneous healing is impossible. Closure of the perforation, by a fresh cicatrix, can only be brought about when the edges shall have been stimulated.

The oldest, and formerly most frequently employed method, was the destruction of the new epithelial covering by the application of nitrate of silver in substance; used principally by Politzer (*Lehrbuch*, 3rd ed., p. 376). Often it did not effect permanent closure and often set up a reactive inflammation, which left the conditions worse than before use.

In small perforations, Schwartze (*Chir. Krankh. des. Ohres.*, 1883, p. 204), obtained good results from cauterization of the edges with the galvano-cautery, or the removal of the edges with the knife. But, even thus, supuration may again be provoked.

Gruber (*Lehrbuch.*, 2d ed., p. 362), obtained good results by making numerous incisions, close together, in the edge of the perforation, but they were not permanent.

Painting with solutions of rubber (*Gummilösungen*), or flexible collodium, only affords a temporary protection, and has no influence on the perforation.

These unsuccessful experiments led Berthold (*Tageblatt der Versammlung deutscher Naturforscher und Aertze in Cassel*, 1878; and *Die ersten 10 Jahre der Myringoplastik*, 1889), to think of employing Reverdin's method of skin transplantation.

After thorough cleansing of the ear, and stimulation of the edge of the perforation, a piece of skin of the same size was taken from the upper arm and placed, raw-side down, upon the edge of the Mt., so as to completely cover the perforation. For reasons given, B. used as a substitute the skin of an egg-shell; it being applied with the side formerly next the egg-white to the stimulated edges. In favorable cases, the egg-shell skin acted as a supporting membrane for the new cell formations of the expected cicatrix. The result was more favorable when the shell-side of the skin was applied. Haug has established by experiment, and histological research, that, first, migratory cells, then elements of connective tissue, and finally blood vessels, enter into the shell-side of the skin; should the formation of a cicatrix follow, then the egg-skin becomes completely absorbed. The possibility of success with this method is conceded; however, facts do not substantiate it.

We, therefore, hail the successful method of Okuneff (*Monat. f. Ohrenh.*, No. I., 1895), by cauterization with tri-

chloracetic acid. He succeeded in effecting permanent closure in one-half of his cases. The cauterizations must not be repeated under eight days; too frequent cauterization destroys the formation of new granulation tissue. If there be no otitis media purulenta healing quickly follows.

Gomperz (*Wiener Klin. Wochenschrift*, No. 38, 1896), reports four recovered and six improved cases. Barnick reports eleven cases permanently cured, in most with improvement of the hearing.

Conclusions.—From the foregoing results we see that Okuneff's method is an unusually valuable one. It is successful alike with young and old patients, even when there is atrophy or sclerosis of the membrane. In only seven cases did the cicatrix adhere to the lateral walls, and this was owing to the fact that a certain part of the membrane was attached to the inner wall of the tympanum before treatment. In other cases the cicatrix was fully moveable.

With the closure of the perforation the hearing distance increased, and there was marked improvement for low tones. In only one case did the hearing remain unimproved.

Alderton.

A Case of Malignant Tumor of the Brain Originating in the Middle Ear.

8. BARR, THOS., AND NICOLLI, J. H. (*British Medical Journal*, October 16, 1897.)

The case was a boy, 12½ years, the symptoms simulating temporo-sphenoidal abscess. The mastoid antrum and cranium were opened and the tumor partially removed. When, however, it was found that the tumor sprang from and widely permeated the petrous bone, further attempts were given up and antiseptic packing and dressing applied. Death resulted two and one-half months later, the growth proving to be a sarcoma of the alveolar type.

Scheppegrell.

The Position of the Consonants in the Tone-Series

9. BEZOLD, Munich. (*Archives of Otology*, Vol. XXVI., No. 4.)

The author, in examining the 79 inmates of the Munich Deaf-Mute Institute, came to the following conclusion in regard to the relation between the hearing power for various parts of the tone-series and the hearing of speech of all the hearing deaf-mutes.

The perception of the area of the tone-series included in the interval b^1-q^2 , inclusive, is essential to the understanding of speech; if the duration of hearing for these tones sinks below a certain level it becomes insufficient for the understanding of speech. When the hearing for this interval is absent on both sides the hearing for speech is lost.

The consonants P, T and R must be excluded, as the majority of the totally deaf can distinguish between them. The consonants M, N, T and K were most frequently found wanting.

According to Helmholtz the humming sound which is caused by the formation of M, N and Ng adjoins the U situated lowest in the scale among the vowels; the proper tone is placed on F, whose timbre permits variations of the proper tone to almost the breadth of an octave.

Wolf considers d/II and d/III, as the upper and lower limits of the consonant K.

Four ears were limited in their perception of the individual consonants to F; the pitch of which is situated between f sharp/I. and g/IV.

The tone-limits for S lie between e and Galton 3.5. The perception for Sh is to be sought between c sharp/IV and e/V.

In other cases where more consonants than the above were heard a larger continuous hearing range for the tone-series was present, extending at least from f sharp/I. to the middle of the Galton whistle. Not a consonant could be correctly perceived in six cases. In these the hearing range extended from E to the middle of the Galton whistle.

Campbell.

The Diagnosis of Perforation of the Drum-Membrane.

10. BLOCH, Freiberg. (*Archives of Otology*, Vol. XXVI., No. 4.)

The author remarks that small deposits on the Mt. a bit of dark cerumen, a foreign body, a little dried blood, slight ecchymosis in the tissue of the Mt. or even cicatrices can form a picture deceptively like that of perforation.

Frequently it is possible to gain knowledge by means of the probe. It is objectionable, however, in that the probe may easily introduce infective germs and touching the Mt. in most people is unpleasant and even painful.

Directing a current of air against the Mt. by fixing a rubber bulb in air-tight connection with the auditory meatus. If the bulb is squeezed no sound is heard when the Mt. is intact, but if a perforation exists a slight crackling sound is heard as the air enters the pharynx if the observer puts his ear near the nose of the patient.

Catheterization of the eustachian tube is less agreeable. When a small perforation exists a peculiar sharp crackling sound is heard in contradistinction to the simple blowing sound of air entering the middle ear with intact Mt.

Siegle's speculum is used more especially for observing the movability of the Mt. and its separate parts. If with this speculum we rarefy the air in the auditory canal when a perforation exists no displacement of the Mt. takes place because of the corresponding rarefaction of air in the tympanum, while if the Mt. is whole, rarefying the air in the auditory canal causes an outward bulging of the Mt. because of the greater air pressure in the tympanum.

Campbell.

Goutiness in Its Relations to the Ear.

BUCK, A. H., New York. *Medical Record*, May 29, 1897.

The author reports seven cases, the ear lesions of which he believes to be of a gouty nature. The alterations which a gouty diathesis commonly produces in the skin and mucous membrane of the middle ear are dilated, and therefore paretic, blood vessels, retarded circulation, escape of the watery element from the blood, both upon the free surface and into the interstices of the tissues, proliferation of the cellular elements of the connective tissue stroma, and swelling or increase in bulk of the tissues thus affected.

In rare cases the bony structures adjacent to these may become involved. It is highly probable that the deposition of the urates takes place at these spots and that their presence plays an important part in exciting the inflammation and in retarding the flow of blood through the affected tissues.

Scheppegrell.

Intra-Tympanic Surgery, Especially in Chronic Purulent Otitis Media.

12. BURNETT, CHAS. H. (*Inter. Med. Magazine*, December, 1897.

From a study of 30 operations for the relief of chronic

purulent otitis media, the following conclusions are offered as the results of excision of necrotic ossicles in this affection:

1. Prompt lessening of the discharge in all cases.
2. Ultimate cessation of the discharge and cicatrization of the fundus in nearly one-half of the cases, as observed so far.
3. Arrest of the advance of caries and necrosis in the drum-cavity, aditus, antrum and mastoid cells, thus lessening the liability of the occurrence of intra-cranial lesions of otitic origin.
4. Improvement in hearing in more than half the cases.
5. Marked amelioration in the general health, especially in those cases presenting symptoms of slight septicemia from the chronic purulency.

Scheppegrell.

Ear-Vertigo from Anemia of the Labyrinth.

13. BURNETT, CHAS. H. (*Philadelphia Polyclinic*, July, 1897.

Deafness, tinnitus and ear-vertigo due to anemia of the labyrinth are of rare occurrence. These cases, as far as reported, are not accompaniments of general anemia and appear to be purely local, the causation not being fully understood.

Anemia of the labyrinth, causing deafness, tinnitus and vertigo, may be diagnosed in two ways, viz., by the temporary congestion induced in the labyrinth by eating, and also by inhalation of nitrite of amyl. If temporary improvement in all or any of these symptoms ensues after eating or after inhalation of a few minims of nitrite of amyl, we are justified in making a diagnosis of chronic local anemia of the labyrinth. The author advises the administration of trinitrin, 1-100 gr. two or three times daily, and reports a case which was benefitted by the use of this drug.

Scheppegrell.

A Foreign Body in the Ear.

14. BURNETT, CHAS. H. (*Philadelphia Polyclinic*, Oct. 2, 1897.

A rolled leaf was removed under ether anesthesia from the ear of a girl of five years. The danger of unskillful efforts to remove foreign bodies from the ear is emphasized in this article.

Scheppegrell.

Operations on the Drum-Membrane and for Improvement of the Hearing.

15. CLARK, E. S. (*Pacific Med. Journal*, July, 1897.)

In two cases of deafness in which the drum-membrane was thick and opaque, the removal of a small portion of the tympanic membrane was followed by negative results. In cases in which the tympanic membrane has been almost or wholly destroyed by chronic otorrhea, and the ossicles injured by necrosis with ankylosis, the removal of one or more of the ossicles will cure the otorrhea and improve the hearing.

Scheppegevell.

Histological and Pathological Contribution on the Malleus and Incus.

16. DONALIES. Assistant to Royal University Aural Clinics, at Halle. (*Archiv. f. Ohrenh.*, June 10, 1897.)

The ossicles do not always have the same histological structure, but show important differences, especially in bone substance and cavities. As for the bone substance, most writers concede that it consists of compact outer and spongy inner substance (*Ruedinger-Monat. f. Ohrenh.*, III., 4). Looking at our preparations, we are persuaded, with Brunner (*Beitrage zur Anat. des Mittleren Ohres.*, 1870), and Eugen Rosner (*Monat. f. Ohrenh.*, 1878, x), that they consist only of substantia compacta, denser in the outer layers. There are only isolated indications of spongiosa in connection with the marrow canals. The medullary canal, which is particularly well marked in the incus, is of irregular form. Medullary canals are found in all parts of the ossicles, especially in the incus, where the diameter of the medullary canal embraces one-third of the entire section surface. The medullary canal runs the whole length of the bone; it narrows much along its length. We are certain that the medullary cavity goes through all processes, even to the outermost extremity, where it is connected with the external surface of the bone by little canals,

In the medullary spaces we find a net-like, connective tissue, which holds the medullary cells and the large blood and lymph vessels. The Haversian canals contain blood and lymph vessels. Most canals have two vessels, a large vein and a small artery, which do not quite fill the canal

The large vessels, which occupy the medullary spaces are connected with those which enter from the periosteum through the Haversian canals, by anastomoses.

The ossicles are, therefore, unusually well provided with blood vessels; the malleus even more than the incus.

Although a carious affection of the ossicles is frequently observed, we cannot make the histiological structure of the bones or their nutrition responsible. The cause must lie elsewhere. Schwartze found the vertical ramus of the incus oftenest diseased. For given reasons, it seems more plausible to assume that in most cases the disease originates in the periosteum. In caries of the ossicles we may assume that it is the result of periostitis. After the destruction of the periosteum the bone is deprived of outside nutrition. It is certain that when caries results from disturbances of nutrition large pieces of bone decay, and thus we have a combination of caries and necrosis. Following the periostitis occurs an inflammation within the bone.

We feel it to be our duty again to emphasize that destruction of the ossicles must not be looked upon as a passive, or even a chemical process, but as a disease, having its origin in inflammation within the bone, which, once there, progresses independently of environment. This is proved by the numberless cases of middle ear suppuration, complicated by disease of the ossicles, and which have been cured through removal of the latter.

That spontaneous cure of caries of the ossicles is possible, should not be questioned; but this occurrence must be considered rare when contrasted with the prevalence of the disease.

Alderton.

A Case of Hyperostoses of the External Auditory Meatus.

17. DUNN, JNO., Richmond. (*Virginia Medical Semi-Monthly*, Feb. 26, 1897.)

The patient, a girl of 18 years, had suffered from ear disease for several years. The naso-pharynx was cleared of extensive lymphatic hypertrophies, and the usual treatment instituted. Three years later the patient again applied for treatment, and an examination showed that the external auditory meatus was almost occluded with bony growths. There was an offensive discharge.

The mastoid antrum was opened, a part of the posterior

wall of the external canal removed, and an opening made through the hyperostoses into the middle ear, which was curetted. Eight days later there was complete right side facial paralysis. The ultimate result was satisfactory, the paralysis disappearing and the external auditory canal resuming its normal condition. There was also considerable improvement in the general health of the patient.

Scheppegrell.

Spontaneous Discharge of Cerebro-Spinal Fluid Through the External Meatus, Probably Through a Congenital Fistula.

18. ESCAT, Toulouse. (*Arch. Internationale de Laryngol et d' Otol. et de Rhinol.*, November and December, 1897.)

In a girl of 10 years, without known cause or pain or other symptoms, a watery fluid was discharged from the ear. This flow lasted for some minutes and recurred 10 to 12 times a day for a month or two. It stopped for several months. The amount of each flow was half a glass. In 24 hours it amounted to 500 cc. Examination of the ear with the speculum revealed nothing abnormal, and aspiration failed to produce any liquid. A fistula could not be seen, but was suspected in the anterior, superior part of the inner third of the canal. This part was treated with galvano-cautery. Since then the flow has stopped.

Holinger.

Anatomical Observations Which Explain Why Mastoiditis Does Not Occur With More Frequency in Cases of Suppurative Otitis Media.

19. FORNS. (*Annales des mal. de l'oreille*, etc., August, 1897; *Laryngoscope*, December, 1897.)

The tympanic cavity is not an exclusive cavity. This cavity which, during embryonic fetal life, is filled with a gelatinous tissue, is emptied soon after birth; but the process of reabsorption gives rise to various fibro-mucous folds, which are like membranes of more or less marked consistence, which have been partially described by some under the name of ligaments, and which on the whole, are nothing more or less than a species of epithelium, which covers and protects all and each of the structures within the tympanum. This process gives origin to the system of cavities which divide the tympanic cavity into various compartments.

Of these there are two of great anatomo-pathological importance—one, antero-inferior, which I propose should be called tubal compartment of the tympanum; and another, postero-superior, which may be called attico-mastoid compartment.

The septum which separates these compartments, and which encloses in its thickness the chain of ossicles, originates above the eustachian tube, and extends along its anterior part in the form of a tent from the external to the internal wall of the tympanic cavity. At the external surface it surrounds the anterior muscles of the malleus, the existence of which I have been enabled to prove on the cadaver, although none of the modern anatomists make mention of said muscle.

Now, from this point, which is the antero-external limit, it runs toward the external wall, protecting the chorda tympani from where it leaves the anterior pocket of von Troeltsch, forming a very acute angle with the tendon of the before-mentioned anterior muscle of the malleus. The membranous expansion before reaching the malleus receives the reflex tendon of the internal muscle of the same, and from this point it gives off various expansions. Some, the internal, go to form all those ligaments which unite the hammer and its neck to the immediate regions, and which have been described by some anatomists. Another continues up to the long process of the incus along the postero-internal portion, constituting a sort of diaphragm, which has been described by Urbantschitsch, and which reaches the posterior part of the promontory above the round window, continuing along the stapes, the latter being surrounded by it up to its base, and extends up to the posterior wall to protect the tendon of the stapedius muscle. Other posterior expansions give rise to the posterior ligaments of the ossicular chain.

In this way the tympanic cavity is completely divided into two great compartments, and other smaller ones. An antero-inferior compartment, comprising anteriorly the eustachian tube, through which it is continuous with the rhino-pharyngeal cavity, and comprising that portion of the tympanic cavity which is in relation with the tympanum proper, and is limited posteriorly by the inferior

portion of the posterior wall of the tympanic cavity and by the septum already mentioned; it, then, has in its posterior cavity the opening of the round window, and as a proximal limit, we have the oval window enclosed in the thickness of the before-mentioned septum. All these constitute the antero-inferior chamber.

Above the septum already described there is another compartment, made up of the attic, antrum and mastoid cells.

I said before, that there were other smaller septa, expansions of the one just described, which, in this connection, constitute cells of minor importance. They are: Von Troeltsch's and Prussak's pockets, the cavities of Politzer, and others of less constancy.

After due deliberation, I believe that this is a normal division of the tympanic cavity, and serves to explain various facts, namely, that the otitis which we call catarrhal, is not pan-otitic, but otitis of the tubal chamber; that is, that as we consider some otitis as being limited to Prussak's pocket or pouch, we should likewise bear in mind that all the catarrhal otitis, by tubal infection, remains in its propagation, limited to the antero-inferior or tubal chamber, and that it requires some time before destruction of the septum, which I have described, permits the process to invade the mastoid region.

Experiments on the fresh cadaver have proven the truth of my statements. If one attaches the canula of an irrigator to the eustachian tube, after removing the superior wall of the mastoid antrum, and injects water, it will not flow out when the level of the fluid is in favor of the irrigator. Allowing the deposit to ascend to four or six centimeters, the water does not flow out, although its level makes one suppose that the fluid most likely has passed into the mastoid region. Then, to be assured that there was no tubal obstruction, the writer makes a paracentesis, when the fluid was seen to make its exit with abundance through the tympanic wound. Shortly afterward, when the external auditory canal was tamponed, the water did not come out through the mastoid region; but on lifting the vessel still higher, it was observed that when it was 24, 26, and in one instance 30 centimeters above the level

of the water over the preparation, the septum, which previously described, ruptured, and then the water made its exit in an abundant stream through the mastoid antrum, as it occurred before through the external auditory canal.

In judging the true merits of this experiment, we must not lose sight of the fact of the loss of resistance which takes place in the organic tissues after death.

The writer believes that the counter-proof which was cited will suffice to complete the demonstration, why it is that mastoiditis is rare in relation with cases of suppurative otitis media.

Loeb.

**A Case of Primary Epithelioma of the Tympanum, Following
O. M. P. C. of Twelve Years Standing.**

20. HAMON DU FOUQUERAY, Mans. (*Annales des mal. de l'oreille*, etc., August, 1897.)

This case was the first of malignant tumor originating in the middle ear that F. has had in twelve years.

Female, 43 years old, scrofulous, O. M. P. C., following sore throat. In September, 1896, sharp pain recurred from time to time; the suppuration and pain increased daily, until the latter became almost continuous. The pus became fetid. Hemorrhages at various times from canal.

November 9, 1896. Very pronounced deafness in left ear, with almost constant tinnitus. Canal filled with yellow, fetid pus. The skin of the internal third of the canal was vivid red, without notable swelling, and showing upon the posterior wall a small fleshy growth, bleeding upon touch.

Large perforation of the Mt. postero-inferiorly; the membrane was also very red and swollen. The perforation was irregular, its edges ulcerated, granulated, and at the center a growth whose summit projected into the canal; all these bled on touch. Incomplete left facial paralysis.

Operation refused. Under treatment, at first the local condition seemed to improve. Toward December 20, pain returned, acute and radiating; facial paralysis accentuated; mastoid still normal in aspect, became sensitive to pressure.

Operation refused. Patient not seen again until March

18, 1897, being seriously ill. Mastoid markedly tumefied; near the position of the antrum, the violet-tinted skin showed a perforation, across which stretched a large fleshy growth, soft and vascular. There was discharging a great quantity of fetid pus. Continuous intense pain, no sleep for fifteen days, axillary temperature 39.5°. Delirium during night.

Operation March 20, 1897: The soft structures were lifted away from the bone, over the temporal, parietal, occipital and superior mastoid regions, by an enormous quantity of soft vegetations, friable and vascular; these were removed by curetting. In the region of the antrum the external osseous wall had disappeared, together with the posterior wall of the canal. The tympanum and antrum formed one single cavity, filled with fungosities, which were carefully curetted.

The tegmen tympani was destroyed and the growth extended into the cranial cavity under the dura. This dangerous region was cleared as completely as possible.

Results of operation good. Temperature during next twenty days did not exceed 38°, and patient was much relieved.

April: Mental disturbances, but no fever, nightmares, difficult sleep, intelligence affected for the first time, especially in speaking. She confounded the names of objects and at times failed to recognize persons. Complained continuously. Progressive emaciation. New fungosities appeared in the wound; pus again fetid and invasion of the deep parts by the neoplasm was evident. Died June 4th.

No autopsy. Histological examination showed the tumor to be a permanent epithelioma. *Alderton.*

Contribution to the Study of Affections of the Ear in Gouty People.

21. GELLE, GEORGES. (*Arch. intern. de Laryngol d'Otol et de Rhinol*, September and October, 1897. Briefly mentioned in Proceedings of French Otological Society, May 5, 1897.)

There are four points that the author of this paper seeks to prove:

1. Gouty people have a predisposition to affections of the ear.

2. Otitis in these people has a peculiar, almost characteristic, course and clinical aspect.

3. Otitic troubles sometimes announce a new attack, or a new manifestation, of the arthritic diathesis. They stop as soon as this latter has appeared.

4. The dizziness, which is usually described under the name of gouty dizziness, is often nothing but a labyrinthine vertigo, which announces an acute or chronic otitis.

From his abundance of patients, he gives a number of histories which must be considered as proving what he says.

He notes all forms of affections of the ear as occurring among the gouty, acute and chronic otitis, dizziness, noises, etc.; so it seems the middle ear, as well as the inner ear, may be the seat of the trouble. At the end of this paper the author gives the following resume:

1. In adults, or children predisposed to or affected with gout, the ear may be affected with acute or chronic suppurative or non-suppurative inflammations. This otitis is very intractable to treatment.

2. The gouty otitis media may start from simple congestion or infection from the naso-pharynx. The congestion may be in the attic, or in the ossicles. Later on we will observe infiltration with lime salts and retraction of the membrane.

3. Very often the catarrhal otitis announces the attack of the gout and disappears with its onset.

4. The vertigo of gouty people is almost always due to ear troubles.

Holinger.

Noises in the Head.

22. GLEASON, E. B., Providence, R. I. (*Atlantic Medical Weekly*, March 13, 1897.)

Tinnitus may be due, not only to diseases of the ear, but also to anemia, or more rarely to aneurism. Tinnitus due to middle-ear catarrh is sometimes alleviated by large doses of bromides, but more satisfactory results may be obtained by the patient taking, after meals, a pill containing one-fourth grain nitrate of silver, one-third grain extract hyoscyamus and one-thirteenth grain of strychnia.

Irritation in the external auditory canal, as from impacted wax, foreign bodies, etc., may also produce tinnitus. It is sometimes also of reflex origin, as from the nose, teeth, or digestive tract. *Scheppegevell.*

**Two Cases of Paralysis of the Left Vocal Cord of
Alcoholic Origin.**

23. GRANT, London. (*Journal of Laryngology, Rhinology, and Otology*, October, 1897.)

Case I. A clergyman, aged 40, complained of weakness of his voice, which came on suddenly at the commencement of a service. There was complete immobility of the left vocal cord, both in respiration and phonation in the cadaveric position. There were very limited movements of the cartilage of Santorini. The thorax was normal, and no evidence could be elicited of specific infection. He was suffering from left-sided sciatica, and there was a considerable degree of anesthesia of the skin of the affected limb. There were no signs of locomotor ataxia, no evidences of lead, mercury or arsenic poisoning. He had morning anorexia, frequent disturbances of the liver, and his slovenly dress was out of harmony with his professional position. Alcoholism was suspected, and he admitted drinking a pint of strong stout at each meal, and he spent the evening reading and drinking brandy and water. Complete abstinence from alcohol, with nux vomica and rest of some weeks, brought about a complete cure of the laryngeal paralysis and a disappearance of the sciatica and his morning anorexia.

Case II.—A woman of middle age complained of a persistent cough. She had a slight bronchial catarrh and a well marked paralysis of the left vocal cord. Several years previously she had had excised from the right breast a tumor, suspected to be cancerous. There were no indications of syphilis or of tuberculosis. The patient had nausea and morning anorexia, and was subject to bilious attacks. She was accustomed to take frequent doses of liquor on account of certain cardiac attacks.

Alcoholic stimulants were limited to two glasses of Marsala daily. She was given the hydrochloric solution of arsenic with aromatic spirits of ammonia and codeia pastilles to allay the cough. In two weeks' time her general

condition had greatly improved, the cough had diminished, and distinct movements of the left vocal cord were noticeable. Ten days later the movements were still more pronounced and the author was able to assure the patient that the affection was a peripheral neuritis of the left inferior laryngeal nerve and in no way depended upon malignant disease.

Campbell.

Peripheral Polyneuritis of the Auditory and Laryngeal Nerves.

24. GRANT, London. (*Journal of Laryngology, Rhinology and Otology*,, October, 1897.)

The author considers the discovery of peripheral polyneuritis and the treatment of myxedema as the two most important additions to medical knowledge since his entrance into the practice of medicine.

Peripheral neuritis, especially that form arising from alcohol poisoning is insidious in its onset, is frequently to be found when looked for, and the results of its treatment are little short of marvellous.

Alcoholic paralysis of the auditory nerves has been studied by Kiesselbach and Alt. They found the condition to be a true nerve deafness; it tends to pass off in three weeks time, and to be replaced by noises in the ear. In Alt's case an ophthalmoscopic examination afforded a valuable confirmation of the diagnosis.

Two cases of alcoholic neuritis of the recurrent laryngeal nerves were reported by the author at the French Laryngological and Otological Society, in April, 1897.)

Campbell.

Some of the General Principles which Should Govern Operations for Otitic Brain Disease.

25. GREEN, J. O. (*Boston Medical and Surgical Journal*, Vol. 137, p. 145, 1897.)

The otitic brain diseases are four: Pachymeningitis externa with extradural abscess, leptomeningitis or arachnitis, encephalitis or brain abscess, and phlebitis and thrombosis of the sinuses and jugular vein. These are all caused by infections from the ear, the microbes being the same variety as are found in the suppurating ear cavities, chiefly streptococci, staphylococci and pneumococci.

The proportion of deaths from otitic brain disease to

deaths from all other causes and to the total number of inhabitants, according to the Prussian statistics for 1885, are as follows:

Age.	In 10,000 living.	Per cent. of all deaths.
0-10	1.14	0.22
10-20	2.35	5.15
20-30	2.79	3.85
30-40	1.53	1.44
Above 40	0.72	0.21

With all the otitic brain diseases except arachnitis, aseptic surgery has dealt successfully.

Operations on lateral sinus:	Cured.	Died.
With ligation of the jugular,	63.4 per cent.	36.6 per cent.
Without ligation of jugular,	42.0 per cent.	58.0 per cent.
Operations for brain abscess:	Cured.	Died.
Cerebrum - -	55.3 per cent.	44.7 per cent.
Cerebellum - -	56.25 per cent.	43.75 per cent.

As far as the value of statistics go, these tables present very favorable results for diseases in which the prognosis is desperate without surgical interference, and in which medicine is absolutely powerless.

The difficulty of making an exact diagnosis in these cases at a sufficiently early period to give favorable results, justifies us in making an early exploration of the bone, the cavity of the ear being first inspected. The author submits the following conclusions:

1. In otitic brain disease early operation is advisable, but an early exact diagnosis is often impossible.
2. The chances are 79 in 100 that a fistula through the bone from the ear will lead directly to the brain disease.
3. The infected ear requires operation in any case, and this operation can be combined with an exploration for the bony fistula and the recognition and treatment of the brain disease.

Scheppegrell.

**Annual Report of the Royal University Aural Clinic at Halle,
From April 1, 1894 to 1895.**

26. DRS. CARL GRUENERT AND ERNST LEUTERT. (*Archiv. f. Ohrenh.*, Bd. 42, H. 3 and 4.)

Treated 1,716 patients; 183 were treated indoors; 115 males, 68 females. Of this number 159 were discharged; 99 males, 60 females. Died, 5; 4 males, 1 female.

Removal of the malleus for the cure of chronic suppuration was done 7 times; 2 permanently cured; 2 cured later by Stacke's radical operation. In both of these cases it was found that the presence of cholesteatomata in the middle ear hindered success of first operation. Only two cases out of five permanently cured.

Removal of malleus and incus in cases of sclerosis were not attempted, as the results had not been good in former years. Experience teaches that, as a rule, in sclerosis, the real hindrance to sound conduction lies internal to the ossicles. A case was diagnosed as ankylosis of the stapes and operation done only to find in place of the stapes an osseous mass which filled the foramen ovale (Greunert, *Archiv. f. Ohr.*, Bd. XLI., S. 314.)

In four cases, synechotomy was undertaken to improve the hearing, and in only 2 was a result noticeable.

The mastoid operation was done in 87 cases; 46 cured; 21 result unknown; 7 still under treatment; 8 unimproved; 5 died. In acute cases, Schwartze's method was employed; in chronic cases, middle ear freely opened after Stacke's method, with modifications usual to this clinic.

Of the 1,716 aural patients, 8 died; 3 outside the clinic from other causes; 5 in the clinic of intra-cranial complications. Only one autopsy permitted in the 3 cases outside of clinic. Gives history of cases. *Alderton.*

Double Massage and Its Value in Diseases of the Middle Ear.

27. ILJISCH, ALEXANDER. (*Arch. f. Ohren.*, Bd. 42, H. 3 and 4.

It is well known that inflation of the tympanum is not only useless, but really injurious in many chronic cases of middle ear trouble, particularly in sclerosis, or when the mobility of the ossicular chain is impaired. Therefore, many aurists have sought to treat these conditions by way of the external canal, the most notable devices for this purpose being those of Delstanche, Haug, and Kirchner. Hommel's tragus massage (recently again brought to notice by B. Alex. Randall-Tr.) did not meet with favor. Urbantschitsch's tubal massage by bougies, was transformed by Laker into a vibratory massage of the tubal mucous membrane. Lucae and Walb obtained good

results with the pressure sound, while others found it of small value.

Tröltsch and Politzer called attention to the fact that when inflation was combined with rarefaction of the external meatus, the effect of treatment was generally heightened. Jankau invented (*Deutsch med. Woch.*, No. 46, 1896), an apparatus for this purpose, consisting of a rubber ball with tubes about half a meter long to fit the catheter and the ear-piece for the meatus. At the place of junction of the tubes with the ball there is a valve for air exhaustion (in the direction of the catheter) and for air pressure (in the direction of the terminal for the meatus.) Jankau uses this device thus: The catheter, connected with the rubber tube, is introduced into the eustachian tube orifice; the ear-piece firmly into the external meatus. Then he executes from 200-300 short movements in $\frac{1}{8}$ time on the ball. In this manner a massage-like effect is created, the air being condensed in the tympanum and exhausted in the meatus. Jankau recommends double massage in all cases where catheterization would be proper. "Good results have been obtained in beginning sclerosis, particularly in young patients, in adhesive inflammation, etc."

Iljisch attempted to establish the therapeutic value of double massage, used alone, and in connection with catheterization in diseases of both the sound-conducting and sound-perceiving apparatus, from the standpoint of careful objective examination.

The short movements must be executed alternately with the three middle fingers and the thumb, for if the vibrations are too rapid, marked fatigue takes place. Also a minimum number of vibrations should be adhered to, in order to secure movements of the part lying between the pharyngeal and tympanic tube orifices. In cases with normal tube, the slightest pressure of the ball suffices to make a fine sound perceptible by means of the otoscope. The greater number of patients do not perceive this vibration when the catheter alone is used; but as soon as the ear-piece is placed in the outer canal, they say they are sensible of the vibration of the drum membrane. With practice, 200-250 single movements can be executed

in a minute. But as fatigue soon follows, Jankau devised an electro-motor, which acts as well as hand massage.

The number of patients under Iljisch's observation was 50, with 91 different affections of the ear, as follows;

Subacute tubal catarrh	-	-	-	-	4
Chronic tubal catarrh	-	-	-	-	5
Chronic catarrh of tube and middle ear	-	-	-	-	23
O. M. C. C. et otitis externa	-	-	-	-	12
Sclerosis (young people)	-	-	-	-	14
Sclerosis (old people)	-	-	-	-	6
O. M. P. Residuosa	-	-	-	-	11
Labyrinthine disease	-	-	-	-	16
Total	-	-	-	-	91

Each case received a thorough examination, including functional testing. Thirteen patients with twenty-four ear diseases were observed only once.

I.—*Subacute Tubal Catarrh*. Two cases in young girls. In the first case hearing was improved from whisper heard close to ear on one side, and 20 ctm. on the other, to about 6 m. in both ears; the catheter having previously been used without effect. In the second case, $\frac{3}{4}$ m. on one side, and 2 m. on the other, improved to over 6m. in both ears.

II.—*Chronic Tubal Catarrh*. Three cases. In one case, catheterization without effect, hearing distance improved from $2\frac{1}{2}$ m. to 6 m. In another case, with slight improvement under catheterization, hearing was improved from about 20 ctm. to 5 m; the massage also diminished the tinnitus in one ear. In the other two cases, hearing was very bad; it was improved in both.

III.—*Chronic Catarrh of Tube and Middle Ear*. Fifteen patients with twenty-three affected ears. Nine complained of tinnitus as well as deafness. Rinne positive in 16 cases, negative in 7. Perception of high tones normal in 14, slightly impaired in 9. [The diagnosis might certainly be called in question in some of the above cases.—Abstractor.]

In twenty-three affected ears, after first massage, test for whisper shows in all cases marked improvement over catheter. In the further treatment only double massage was employed when the tube proved pervious; where

there was marked stenosis, however, air was first blown in to facilitate vibration. In the ten cases remaining for any time under treatment, the improvement was lasting in all cases. [The author's arithmetic seems defective. He mentions fifteen cases, reports that five did not return, and that seven returned only once, and yet has ten cases showing lasting improvement.—Abstractor.]

The influence of double massage on the subjective auditory sensations was of value in nearly every case. Tinnitus always better after massage, and sometimes absent for a whole day. In two cases, in which tinnitus had been present for years, it greatly diminished during treatment, while in the remaining cases the improvement was but temporary.

IV.—*Chronic Middle Ear Catarrh with Labyrinthine Complication.* Seven patients, aged from 14 to 49 years, with twelve affected ears, subjective auditory sensations in five cases. Rinne positive in five and negative in seven. Perception of high tones normal twice, slightly impaired twice, and seriously impaired in seven; in one case no perception. Hearing distance fluctuated for whisper between 10 ctm. and 1 m. for numbers, between 0 and 40 ctm. for words.

Therapeutic results were not marked. In three cases no results; in eight cases a better result obtained with first massage than with catheter. In four cases, the tinnitus was lessened; in one case no change.

V.—*Sclerosis.* Ten patients with twenty affected ears. Three cases were sclerosis of old age. Five patients complained of subjective sensations. Rinne, eleven positive, nine negative, perception for high tones normal in thirteen, slightly in five, and seriously impaired in two. Hearing distance for whisper before treatment, between 0 and 1 m., 60 ctm. for numbers; 1 m. 40 ctm. for words.

Comparing double massage with the catheter, at the first treatment in eight cases (three of sclerosis from old age) the hearing was not improved; in eleven cases, marked improvement over catheter; in one case improvement, when catheter was useless. In the majority of cases there was gradual, but marked improvement in hearing, which remained stationary on reaching a certain degree.

VI.—*O. M. P. Residuosa*. Eight patients with eleven affected ears. Tinnitus in two cases. Rinne positive in seven; in four, negative. Perception of high tones normal in three, in seven slightly, and in one seriously impaired. Hearing distance before treatment from 4 ctm. 5 m. for numbers, and from "close to ear" $2\frac{1}{2}$ m. for words. There occurred in ten out of eleven, improvement after the first massage, when none was obtained from the catheter.

The improvement in the hearing was not only real, but lasting. In the two cases with tinnitus, not materially lessened in one, in the other notably diminished.

VII.—*Disease of the Labyrinth*. Ten patients with sixteen affected ears. Tinnitus in six cases. Perception for high tones impaired in all cases. Hearing seriously impaired; complete deafness—25 ctm. for whispered numbers, 10 ctm. for whispered words. No result after treatment in twelve cases; four slightly improved, in two where the catheter was useless. Tinnitus was temporarily abolished in some cases.

Resume.—In all cases where any result was obtained by the catheter, it was increased by double massage.

The results from double massage were, on the whole, more lasting.

Double massage is of great value in sclerosis.

In no case did double massage work unfavorably upon the hearing or tinnitus.

Air massage acts upon the mucous membrane; the swelling is gradually reduced, and a permanent widening and flexibility of the tube results. It also has a tonic effect on the mucous membrane. No relaxation of the drum takes place. The mobility of the ossicular chain is enhanced.

Alderton.

**Labyrinthine Dizziness Resembling Meniere's Disease,
Cured with Pilocarpin Without Decreasing the
Hearing.**

28. JANKELEVITCH. (*Rev. hebdomadaire de Laryng., d'Otologie et de Rhinologie*, December 22, 1897.)

The author first mentions the different forms of dizziness, namely, from the stomach, heart or ear, and, perhaps, from the brain. He thinks that usually during treat-

ment the hearing decreases. The patient, 65 years old, suffered from trigeminal neuralgia, and in addition, was suddenly attacked by vomiting, noise in the ears and extreme dizziness. Nothing helped until the author made injections of 10 minims of 2 per cent. solution of pilocarpin. After the second injection, there was improvement of vomiting and dizziness. The subjective noises disappeared last. *Holinger.*

A Case of Homolateral Acute Affection of the Auditory, Facial and Trigeminal Nerves.

29. KAUFMANN, Vienna. (*Archives of Otology*, Vol. XXVI., No. 4.)

A man aged 34, of previous good health, was taken ill with symptoms of malaise, anorexia, occasional headaches, and temperature of 38.4 C. The skin of his left cheek became red, painful, and covered with small blisters. He now suffered from intense headache, vertigo, repeated vomiting, and was compelled to stay in bed.

Nine days from the beginning of his illness, there developed paralysis of the left side of his face, tinnitus aurium and total deafness of the left ear. There was loss of taste on the left half of the tongue; the uvula was not paralyzed. Examination of the internal organs and nervous system proved negative. Naso-pharynx, eustachian tube and mastoid process were normal. The tuning fork placed on the head was heard only on the right side. On light tapping of the tuning fork no sound was heard on the left side through air conduction; bone conduction was very greatly shortened (hearing with the other ear?). The patient was kept perfectly quiet and given iodid of sodium and injections of pilocarpin. His condition slowly improved, and when last seen the facial paralysis had disappeared, and he only complained of continued tinnitus and feeling of deafness in his left ear. Loud speech heard about 2 m. Weber lateralized to the right. Rinne positive for tuning forks of medium pitch with a decided shortening of the time of perception; a slight tap of C₄ was not heard at all on the left side, C only for a short time.

By exclusion the affection is considered a neuritis, though this but rarely affects nerves of the special sense. *Campbell.*

Tympanic Neuralgia in Connection with Abscess of the Tongue.

30. KÖRNER, Rostock. (*Archives of Otolaryngology*, Vol. XXXVI., No. 4.)

A man aged 36, who, since an attack of scarlet fever in his third year, has suffered from bilateral otorrhea and occasional pains in the ears; for the past two weeks he had severe pain in the right side of the pharynx and in the right ear. A glandular swelling the size of a pigeon's egg was situated between the right inferior maxilla and the hyoid bone, and at the base of the tongue between the epiglottis and the right anterior palatine arch was a dark red swelling as large as a walnut. The lower two-thirds of both Mt. were wanting, and the tympanic mucous membrane was congested. During examination, the swelling of the tongue opened, discharging a thick odorless pus and this was soon followed by relief from pain, both in the neck and ear.

Campbell.

A Case of Middle Ear and Mastoid Suppuration in a Diabetic Patient, with Remarks on Percussion of the Mastoid Process.

31. KÖRNER, Rostock. (*Archives of Otolaryngology*, Vol. XXVI., No. 4.)

A man, aged 54, suffered for three days with pain in the right ear, when otorrhea set in, but the pain persisted. Pulse rapid, temperature normal. The mastoid process was edematous and tender. The auditory canal contained blood-stained pus. A granuloma projected through a small perforation in the middle of the Mt., and upon its removal the pain became less and the discharge more profuse. Although there was marked local improvement, the patient's general condition failed. Examination of the urine showed 5 per cent sugar, and albumen in small amount. For two days there was hiccough, pulse 120, respiration 24, temperature sub-normal. Bacteriological examination of the aural discharge showed staphylococcus albus in pure culture.

The percussion note over the two mastoid processes was exactly similar.

The patient continued to fail, otorrhea set in, vertigo and slight delirium. Three litres of urine passed in twenty-four hours containing $6\frac{1}{4}$ per cent of sugar.

Five weeks from the commencement of his illness, though the two mastoid processes were alike on palpation, there was dullness on percussion over the right, and normal bony resonance over the left mastoid. The patient died in coma.

Though an autopsy was not made, yet we can say with certainty that there was disintegration within the mastoid process, because, whenever the percussion-note of a bone changes from normal to dullness during our observation, and repeated comparison with the percussion of the healthy one, without a change in covering of that bone, some change in the interior of that bone has surely taken place.

Campbell.

**Treatment of Chronic Suppurative Otitis Media with
Picric Acid.**

32. LACROIX. (*Arch. internat. de Laryngol., d'Otol. et de Rhinol.*, November and December, 1897.) The author gives a short description of the chemical composition and the physiological properties of picric acid. It is at the same time antiseptic, analgesic, and keratoplastic. He recommends instillations of

℞	Picric acid	-	-	-	0.2
	Alcohol 90%	-	-	-	3.2
	Aq. dest.	-	-	-	20.2

M. S. Use mornings and evenings.

Several histories of patients prove the advantage of this treatment. Sometimes the author washes the attic with this solution. The treatment is often, but not always successful. In some cases bad consequences have been noticed directly following the use of the remedy, pain, redness, swelling of the skin. Therefore, picric acid is contraindicated in acute otitis media and in eczema of the meatus. For other reasons it can not be employed in cases of cholesteatoma. It is a disagreeable feature that it stains the skin yellow. To remove the stains, washing with concentrated solution of carbonate of lithia is recommended. During the treatment, the ear must often be washed in order to remove numerous scales produced by the picric acid.

Holinger.

Japanese Ivory.

33. LANNOIS, A. (*Arch. Intern. de Laryngol., d'Otol. et de Rhin.*, September and October, 1897.) The author de-

scribed a little group carved out of ivory, consisting of a Japanese priestess removing some wax from an old man's ear. In China it is customary, at the time the head is shaved, for the barber to remove the ear wax, which he does with wonderful dexterity. This fashion was practiced in Japan about 200 years ago, but is now forgotten. We find, however, a reproduction of it here, probably for the foreign market.

Holinger.

Suppurative Inflammation of the Middle Ear During Broncho-Pneumonia.

34. LATROLLE. (*Rev. hebdomadaire de Laryng., d'Otol., etc.*, November 27, 1897.) The author made a bacteriological examination of the secretion of a suppurative inflammation of the middle ear, which arose during a chronic broncho-pneumonia. He found Koch's bacillus. Later on, he heard that the child was feeling better. It is very hard to find a single reason why the author published the case. The character of the broncho-pneumonia was not investigated. He does not state what he means by Koch's bacillus, and, finally, he did not even follow up the case beyond a single examination.

Holinger.

A Case of Mastoid Periostitis.

35. LAURENS, GEORGES, Paris. (*Annales des mal. de l'or.*, etc., August, 1897.) Mastoid periostitis as a sequel of O. M. A., without involvement of the mastoid cells or of the external auditory canal occurs so rarely, that we present the following striking example:

Male, 27 years old, first seen March 18, 1897; intense coryza twelve days previously, with acute right otalgia and hardness of hearing. Since three days, diffuse swelling over whole mastoid region. No otorrhea. No previous ear trouble.

Present condition: Auricle stands out perpendicularly from side of head, because of an enormous gathering occupying all of mastoid region, obliterating the retro-auricular groove; the superior and inferior limits of the swelling correspond to those of the mastoid; swelling is red, tender and fluctuating. Traction of the auricle is not painful. No excoriation any where near the parts involved. The external auditory canal is free, skin normal. Mt. slightly pinkish, not swollen; manubrium injected.

Watch heard only 20 ctm. Naso-pharyngeal tract shows subsiding coryza; the right tubal prominence is edematous and swollen. General condition of patient satisfactory.

March 19, Operation: Incision evacuated pus; no sign of fistula or disease of osseous wall of mastoid or canal. Notwithstanding, mastoid was opened to antrum; no pus or granulation tissue anywhere, and antrum was normal. Paracentesis of the Mt. was then done, showing the tympanic cavity to be empty, and containing no pus.

Healing uneventful. Watch heard 1 meter, whisper 2.50 m.

Evidently a case of mastoid periostitis without lesion of the cells; Wilde's incision would have sufficed here.

Adeno-phlegmon of the retro-auricular gland could be excluded as the tumefaction in adenitis does not encroach on the auricle.

Furunculosis of the canal could be excluded, the canal being normal.

The coryza provoked an otitis media by extension through the tube, and the mastoid periostitis was induced by infection from a distance, and not by direct propagation, through the vascular connections between the periosteum and the middle ear cavities,

But this case must not be regarded as a triumph for Wilde's incision; against the rare successess it has given must be placed the countless misfortunes which it has caused. Wherever we have been in doubt as to the condition of the antrum, we have preferred to trephine. Why should differences be allowed to exist between otological surgery and the precepts of general surgery? Since the days of asepsis and antiseptis, the number of surgeons who abstain from operating, diminishes more and more.

The chances of infection are singularly less in an exploratory mastoidotomy than in an exploratory laparotomy, and yet how often is the latter done? *Alderton.*

Air Douche Through the Tube Into the Middle Ear. Modification of Politzer's Experiment.

36. LAVRAND, H. (*Rev. hebdomadaire de Lar., d'Otol. et de Rhin.*, December 4, 1897.) The "new" procedure which the author advocates for inflation of the middle ear, consists in blowing out the cheeks instead of drinking water.

[Is it not odd that this should not have been known to the French previous to May, 1897, when Lavrand told them about it?—Abstractor.] *Holinger.*

Removal of a Large Cholesteatoma of the Temporal Bone Through a Big Opening in the Auditory Canal.

37. LICHTWITZ. (*Arch. internat. de Laryng., d' Otol. et de Rhinol.*, November and December, 1897.) Patient is 25½ years old. Since his seventh year, when he had typhoid fever, he suffered from suppuration from his ears. At the age of 13, the cholesteatoma was diagnosed but not operated upon, because it caused no symptoms. There was no pain, nor facial paralysis nor dizziness. Now, without further symptoms, two cholesteatomatous masses, each the size of a hazelnut, have been removed. The whole posterior bony wall of the external canal was found to be absent. At the end of this paper the author takes exception to the statement of Hessler, that these growths originate in the external meatus, by stating that this, as well as a former case published by him, began in the middle ear. Hessler had mentioned the first case as proving his theory. *Holinger.*

Some Modern Aspects of Deaf-Mutism.

38. LOVE, J. K. (*Journal of Laryngology, Rhinology and Otology*, December, 1897.)

I.—*Regarding Our Knowledge of the Causes of Deaf-Mutism.* Most cases of acquired deafness resulting in dumbness are due to (a), exanthemata; (b), meningitis, or conditions mistaken for it; (c), continued fevers, during the course of which meningitis is developed. Without a cochlea, a deaf mute cannot hear; wherefore, it is interesting to know that often a part of the labyrinth escapes destruction, while on the other hand a deaf mute is sometimes able to hear a high note and not a low note, or a deep, and not a soprano voice.

II.—*Regarding the Modern Management of Deaf-Mutism.* About all that the aural surgeon can do is to guide the teacher, helping him to understand the deaf mute and to select his methods according to the latter's needs. Frequent tests of the hearing should be made, and if an "island" of hearing is discovered, it should be exercised by the tones belonging to it in the gamut of sound. If

these belong to the range of the human voice, the speaking trumpet should be used; if not, the corresponding tones will be found in the key-board of the piano or the strings of a violin. Ceruminous collections, adenoids, etc., should be removed.

III.—*Regarding the Prevention of Deaf-Mutism.* The writer confesses that he is radical in views upon this subject, and elucidates the following principle: "It is the family tendency to deafness rather than the presence of deafness in the parents which determines the appearance of deafness in the offspring. Parents transmit deafness, not because they are deaf, but because and in the degree in which they represent family deafness." He discounts marriage among those who come within the operation of this principle.

In acquired or adventitious deafness, there is a clear field for immediate action and recourse to be had to the prevention of the effects of the exanthemata, syphilis, etc.

Loeb.

A Case of Suppurative Phlebitis of the Lateral Sinus After Accidental Opening of the Vessel During a Mastoid Operation. Opening of the whole Length of the Sinus. Death.

39. JACQUIN, LUCARD. (*Arch. internat. de Laryng., d'Otol. et de Rhinol.*, November and December, 1897.) A girl of 9 years was operated upon because a chronic suppurative inflammation of the ear had at different times acute exacerbations with pain and fever. At the end of the operation, the sinus was accidentally opened by the curette. The hemorrhage was stopped with iodoform gauze. The general condition and fever improved considerably. Change of dressing was made on the fifth day, the gauze on the sinus was not removed, but sprinkled with sublimate solution and left in place for eleven days, when fetid pus was found under it. Two days later, high fever and chills set in. Pyemia. Thirty-three days after the first, a second operation had to be done. The sinus was found full of thrombi and pus. All around it was a large granulating abscess cavity. Death occurred four days after the second operation. No post-mortem was made.

Holinger.

Two Small Contributions.

40. LUCAE, A. (*Arch. f. Ohrenh.*, June 10, 1897.)

I.—*A Simple Protective Device in Massage of the Drum Membrane.* Pneumatic massage, in the form of a pendulum-like air pressure vibrations, has in great measure replaced the old method of air-aspiration in the external auditory canal.

Fortunately, the time has gone by when effort was made to loosen adhesions of the drum membrane through the violent evacuation of the auditory canal by means of an air-proof syringe. This method, instead of improving the hearing, called forth hemorrhages of the canal, the drum membrane and the tympanum. Even with the milder methods, by means of the mouth or a rubber tube and a small rubber ball, it was rarely possible to avoid hyperemia of the ear, and I gave up the method some time ago. (*Brch. f. Ohrenh.*, Bd. XXI., 86.)

As for pneumatic massage, an article by Wagener (*Mechanical Treatment for sclerosis of the Tympanum, Arch. f. Ohrenh.*, Bd. XLI., 199.) I take the liberty of speaking of a historical error in Wegener's article. Not Walb, but Garnault of Paris, and Lester of Brooklyn, were the first to electrify my pressure sound.

Compare: Lucae, "two kinds of automatic pressure sounds for treatment of certain ear affections, etc.", (*Berliner Klin. Wochen.*, 1894, No. 16,) obliges me to call attention to the fact, that this method is by no means quite harmless. Wegener makes use of an apparatus similar to Delstanche's rarefacteur, in which an air pump is made to vibrate rapidly by means of a motor. He praises his instrument, and says that injection of the malleal vessels took place in a majority of his cases. He adds that he never observed bad effects. We permit ourselves to remark that his observations were limited to six patients.

Now, I with my extensive practice, observed frequently very grave consequences; an increase of deafness or of subjective sensations, or of both. Marked hyperemia of the Mt. occurred frequently.

In order to avert such consequences, I have, for about a year, made a small opening in the rubber tube near the ear-piece; this opening works like a safety valve, and yet

the pendulum-like vibrations will be strong enough to set the Mt. in motion. Improvement has then taken place in several cases of incipient sclerosis. Wegener's apparatus is surpassed by the electric motor air-pump devised by Breitung (manufactured by Reiniger, Gebbert & Schall), but even in the latter the simple protective device mentioned above, prevents uncomfortable consequences.

II.—*A Simple Method by which Infection of the Mucous Membrane of the Middle Ear, Through Blowing in Nose Secretions, May be Avoided in Catheterization.* I am persuaded that many a purulent middle ear catarrh may be traced to this source. I now employ a method to be permanently recommended for simplicity and relative security. I make use of the air douche while introducing the catheter into the nose. Thus the nasal secretion is blown away, and cannot possibly enter the catheter. It is necessary to have a continuous stream of air, as from the double balloon; those who still use the simple rubber ball cannot attempt this method. *Alderton.*

Tests of the Acuteness of Normal Hearing.

MATTE AND SCHULTES. (*Archiv. f. Ohrenh.*, June 10, 1897.) Hearing tests were made with two companies of infantry in the drill hall. This hall was 50 mtr. long, 12 mtr. wide, and from 4.5-6.5 mtr. high. Doors and windows were closed, but even the street sounds could not be shut out. The whisper served as the source of sound. It was not possible to establish the maximum hearing distance, because the length of the hall (50 mtr.) did not admit of it.

The tests were conducted in this way: The speaker stood at a distance of 45 mtr.; the ear turned to the wall was closed; it was not possible to observe the mouth of the speaker. Tests were made alternately by three observers, in order to compare the unavoidable influence of individual intensity differences. Each ear was then tested with three whispered numbers, and only when these were correctly repeated, were no further tests made.

Results: 400 ears tested; 344 heard the whispered numbers correctly at once; 37 made mistakes in the beginning; 12 during examination; 4 at the end; 4 remained uncertain, although long tested.

The greater number of answers (86 per cent.) were so prompt, that it was not thought worth while to test other companies. The writer is confident that the result would have been much more marked had it not been for sundry noises, such as shuffling, etc., among the men, and work on a railway near by.

It is difficult to establish a general valid acuteness of hearing, because not only age, occupation, and mode of life, but also heredity play so great a part. Former tests made upon school children at Apolda (proceedings of the German Otological Society at Nürnberg, May 22-24, 1896, p. 33), and conducted in the same way, showed for normal children a hearing distance of 35-40 mtr. The above tests showed even higher values. We cannot, therefore, be far wrong, when *we claim for the first to the third decennium air acuteness of 35-40 mtr. in hearing.* Alderton.

**Profuse Hemorrhage from the External Auditory Meatus,
Secondary to an Injury.**

42. MEANS, C. S. (*Columbus Medical Journal*, December 21, 1897.) A man of 25 years had had repeated hemorrhages of the ear at intervals of several days, the bleeding being so severe that the patient had to lie down and have the external auditory canal tamponed. It was found to be due to a blow which had caused the epithelium of the external auditory canal to be separated from the cartilage. Scheppegrell.

A Case of Otitic Brain Abscess from Chronic Otorrhea; Optic Neuritis. Opening of the Mastoid and Skull. Recovery.

43. MILBURY, F. S. (*Laryngoscope*, December, 1897.)

The patient, Mrs. J., aged 33, had had more or less discharge from left ear since infancy. Examination, Mastoid edematous and very red, entire left side of head acutely sensitive, slight paralysis of left side of face and right arm and leg. Amnesic aphasia, dead bone in tympanum and posterior wall easily perceived by sound, left optic neuritis, temperature 100°, pulse 115.

Operation: After most careful antiseptic precautions, the writer excised the soft tissues, detached the lining membrane of the meatus, laying the ear forward and retracted the posterior integument, giving a clear view of an extended field. The cortex in places was soft, but no fis-

tulæ or pus were visible on the surface of the bone. By cautious chiselling, the antrum was entered. Exploration with a probe discovered in every direction carious bone, which was easily removed by a sharp spoon, and nearly the entire mastoid was found to be involved. The antrum and large cell at tip of mastoid and smaller cells were filled with the foulest pus imaginable. The lateral sinus came into view but looked blue, healthy and pulsating. A large sequestrum removed from the posterior wall of meatus, making a broad connection between the tympanic cavity and antrum. Also the postero-superior wall, which was soft, was removed, and the moment the brain cavity was entered, pus rolled out in large quantities. The wound in skull was enlarged with a rongeur, and the depth and extent of the pus cavity measured with a sound. The instrument passed in about $4\frac{1}{2}$ inches, from which the writer concluded that the sinus had a diameter of fully an inch, and involved a portion of the temporo-sphenoidal lobe.

The wound was flushed with a 1 to 6,000 corrosive sublimate solution, dusted with iodoform and dressed with sublimate gauze, a drainage tube being put in place, and the whole covered with cotton and a roller bandage. Temperature 101° , pulse 125; extremities cold; hot water bottles to feet, and every two hours she was given an injection of strychnia and whiskey. The after treatment was long and tiresome; temperature at 6 p. m. 100° , pulse 120, and 8 p. m. 110; extremities warm; reaction from ether good; vomited considerably; slept from 12:30 a. m. to 5 a. m. Frequent vomiting continued for six days, or until June 2, and for twelve days thereafter the temperature varied from $99\frac{1}{2}^{\circ}$ to 101° ; pulse from 80° to 120° , sometimes weak and intermittent, and at other times full and strong. Could retain no food on her stomach, but was nourished by enemas. At first dressing, quite a quantity of pus came from the wound, but there was no odor.

During the first seven days she remained in a state of almost constant lethargy, uttering no sound and apparently recognizing nothing. On the eighth day, when called by her name, the response was by quite a firm pressure of the hand. On the ninth day, June 4, and for

several days thereafter, when asked a question, the answer would be "no" or "yes, dear," placing her hand upon her head, at the same time giving utterance to the word "pain" but not conscious of what she was doing. June 7, when asked how old she was, she would shake her head, indicating she did not know, but when told said "that's right."

The wound healed kindly, and recovery of her general symptoms continued gradually, but slowly, to improve to a complete restitution of the mind and paralysis of the face, arm and leg. The hearing in the left ear, as will be surmised, is nil; vision normal; but at rare intervals she will say funny things, as if she did not realize what she was uttering.

The writer has been unable to discover a parallel case in literature, and doubts if there is one. It was seen by a large number of well known physicians, but none could understand the existing condition, and the greatest mystery of all is the recovery. Another peculiar feature is the fact of her being about four months pregnant, and through it all did not abort. The mental condition was probably due to the abscess and pressure on the brain, which occasionally occurs in such cases. *Loeb.*

Chronic Middle Ear Suppuration, Cerebral Abscess.

44. MILLIGAN. (*Journal of Laryngology, Rhinology and Otology*, November, 1897.) A woman, aged 35, who for years had suffered from a scanty, fetid discharge from the right middle ear, as a result of exposure, suffered great pain in the depths of the meatus, which gradually spread over the right side of the head. There was tenderness over the right mastoid process, but over the right parietal region the gentlest percussion or pressure caused most intense pain. Temperature 101° F., pulse 100, respiration 22. The pupils were equal and reacted to light; no optic neuritis.

A diagnosis of temporo-sphenoidal abscess was made, and operation advised.

Under chloroform the mastoid, antrum and attic were opened and carefully examined for any fistulous track which might show the path of propagation to the interior of the cranium, but none was found.

On account of collapse the operation of opening the

cranial cavity was deferred. Two days later with temperature 97.4° F., pulse 60, respiration 16, a disc of bone was removed 1½ inches behind and above the center of the external auditory meatus (Reid's base line). The dura at once bulged into the opening and no pulsation was visible. A pus searcher was driven into the temporo-sphenoidal lobe and after penetrating the cortex half an inch, about three drams of fetid, dark colored pus escaped. A drainage tube was inserted and the abscess cavity irrigated with boracic acid solution. Recovery was uninterrupted.

Campbell,

Three Cases of Intracranial Complications of Otitic Origin.

45. MOURE. (*Rev. hebdomadaire de Laryng., d'Otol. et de Rhin.*, October 23, 1897.) "The cerebral complications of otitis are not rare, but while in France they usually are found on the post-mortem table, in other countries they are diagnosed and operated upon." After this frank statement, the author gives a few data of successful operations by Lanelogue, Lannois and Broca. He adds nothing new to the symptomatology. The first case was a child, who recovered; the second a woman, was confined March 12, had fever, operation on the mastoid the 20th, and died the 21st. The post-mortem proved an abscess of the 2d and 3d temporal convolution, which was 5 cm. long and 3 cm. high. The third case, a child of 30 months, had sinus-phlebitis; the operation was allowed too late by the family. The author advises early intervention in these cases.

Holinger.

Some Remarks on the Treatment of Chronic Suppuration of the Middle Ear.

46. OWEN, F. S., Omaha. (*Medical Review*, October 15, 1897.) A review of the usual treatment of this disease,

Scheppegrell.

Indications For Paracentesis of the Drum Membrane.

47. RANDELL. (*Philadelphia Polyclinic*, October 16, 1897). The author gives the following rules:

1. When there is great pain associated with a bulging membrane due to restrained purulent secretion and the proper drainage canal through the Eustachian tube to the nares is impervious to gentle Politzerization.

2. When the tension of the drum membrane is high, but the bulging is slight because the membrane has been thickened by chronic otitis media.

3. When there is insufficient drainage for the pus and there is danger of extension of the inflammation to the antrum and mastoid.

4. When the pain is excessive and not relieved by the hot douche and the tension of the membrane is high, paracentesis may be performed simply for relief of the pain.

Scheppegrell.

The Relationship of Dental Irritation to Aural Disease.

48. ROGERS, F. T., (*Atlantic Medical Weekly*, December 18, 1897.)

In some cases, free lancing of the gums gives immediate relief from earache in children, thus showing the relation of earache to first dentition. In tubercular children, eczema of the auricle and circumscribed inflammation of the external ear and auditory canal are often aggravated or caused by decayed teeth or defective dentition, and are relieved by proper attention to this defect.

Scheppegrell.

Pathological Changes of the Middle Ear in Measles.

49. RANDOLPH AND BEZOLD, Munich (*Archives of Otology* Vol. XXVI., No. 4). These authors give the results of their observations in 16 autopsies:

In the first five cases (six temporal bones) the period between the eruption and death did not exceed 3 to 4 days, but the cavities of the middle ear were filled with a mucopurulent exudate—the Mt being intact. This along with the fact that the upper part of the cartilaginous tube was always normal makes them incline toward the view expressed by Tobeyitz, that the middle ear affection was a primary trouble. Extensive involvement of the middle ear may be present with out slight changes in the Mt. In one case 33 days intervened between the eruption and death and the Mt was still intact. The Mt. does, however, undergo fairly constant changes. It loses its lustre and takes on a livid white or bluish-grey color, while the surface appears slightly wrinkled. The reflex becomes firm or is lost and the epidermis not frequently peels off.

A bacteriological examination of the exudate showed streptococcus present in most cases the staphylococcus pyogenes albus less frequently, and staphylococcus pyogenes aureus only exceptionally found.

Campbell.

Intra-cranial Extension of a Middle Ear Suppuration.

50. SCHMIEGELOW, Copenhagen (*Archives of Otolaryngology* Vol. XXVI., No. 4.)

A boy, aged 12, had a left middle ear suppuration when two years old; the Mt had perforated spontaneously and a subperiosteal abscess over the mastoid was opened by incision. Since that time there has been more or less discharge from the ear. After unusual exertion the discharge increased and became fetid, there was pain, vomiting and dizziness. Under local treatment and rest his condition improved, but six weeks later he could not endure noises and vomited whenever he raised his head; he was pale, thin, rational but answering slowly; no paresis, pupils equal and tongue protruded straight. Pain was localized in the left temporal region. Temperature normal, pulse 58. The mastoid neither swollen or tender.

Under chloroform the mastoid cells, antrum and tympanum were opened and cleared of pus and granulation tissue. The middle fossa of the skull was entered and an epidural abscess and a large cholesteatoma evacuated. Punctures of the temporal lobe revealed nothing, but a great quantity of cerebro-spinal fluid escaped. Through a chiselled opening behind the lateral sinus the posterior fossa was exposed and the cerebellum punctured with negative result. The wound was dressed with iodoform gauze. Pulse after operation 80. On the following day no headache, nausea or dizziness. Convalescence was uninterrupted.

Campbell.

Acute Catarrh of the Middle Ear as a Sequel of Grippe.

51. SMITH, S. W., Society Report of the New York State Medical Association, October 12, 1897, (*Medical Record*, October 16, 1897.)

After a careful review of the symptoms and of the differential diagnosis of acute otitis media following grippe, Dr. S. W. Smith, of New York, the writer, states that about

75 per cent. of these patients lose at least a portion of their hearing through improper treatment. It may even be followed by meningitis, thrombosis, and even embolism and metastatic abscess.

In the discussion of this article, Dr. L. J. Brooks, of Chenango County, stated that he had obtained good results from the following method: Politzerization of the patient two or three times per day and siphoning warm saline solutions into the affected ear at short intervals.

Dr. Bernard Kohen, of Buffalo, advised early paracentesis. He found quinine gave bad results.

In conclusion, Dr. Smith stated that he was opposed to the use of the Politzer bag because of the pain that it produced. He also favored paracentesis as soon as demanded.

Scheppegrell.

Notes Upon Some New Low Toned Tuning Forks For Clinical Purposes.

52. SPEAR, Boston, (*Archives of Otology*, Vol. XXVI., No. 4.)

The author, in experimenting, has chosen an alloy, from which he has had manufactured tuning forks with very few over-tones. Forks giving tones corresponding to those in the lowest octaves have been finished, and the production of any desired tone is now possible. The lowest fork in his series is Bb .29 m. long and weighing .312 Kgm.

Campbell.

Experiences in Otology in the Out-Patient Department From January 1, 1896 to January 1, 1897.

53. STETTER, (*Monat f. Ohrenh.*, March, 1897 and April, 1897.)

Nine hundred aural cases, about evenly divided as to sex; nearly 50 per cent. under 21 years of age. The following operations were done: Opening abscess in external ear, 14; paracentesis of Mt, 25; extraction of polyp, 5; Wilde's incision, 12; cauterization of middle ear granulations, 25; mastoid antrotomy, 11.

Urgently advises the use of the syringe in the removal of cerumen, whenever possible. Cites one case in which ill-directed efforts at removal produced traumatism resulting

in abscess over squamous portion of temporal and permanent narrowing of canal with desquamative inflammation and chronic hyperemia of Mt; hearing was also affected. Recommends boring out centre of plug with a cotton carrier, in obstinate cases, before syringing. Where time is not a consideration he uses instillations of warm carbonate of potassium solution one day and the following day in tils luke-warm oil, whereby he has never yet failed to succeed in removing on syringing.

Hemorrhagic myringitis occurred most frequently in connection with influenza, belonging always to the early symptoms. It occurred in the form of separate, small blisters most frequently on the posterior inferior quadrant or as a large bleb, involving a large part of the Mt. Very severe pain, especially towards evening, so soon as the recumbent posture was assumed. Purulent secretion did not occur, but many showed a serious extravasation on the free surface. Used general anti-phlogistic measures and instillation of weak cocaine solutions. Together with evacuation of the blood blebs; in no case cutting through the whole Mt. After treatment, without syringing, by tampon of Haug's chinolin naphthol gauze. They all healed by primary intention in a few days. In the cases not so treated, suppuration appeared without exception, quickly becoming a purulent otitis media.

In all cases the naso-pharynx was treated by means of inhalations of a 1 per cent. solution of zinci-sozo-iodol.

Divides chronic myringitis into purulent, granulating and dry forms. In thirty-one of the fifty-eight cases, the Mt. was uniformly and diffusely injected, of a light rose color, the manubrium only showing through as a pale stone grey, the vessels being perceptible as dark red streaks. At the same time there was not a single symptom of beginning middle-ear sclerosis, so that it was evident that only a myringitis chronica sicca existed; the symptoms all disappearing under treatment and the hearing completely returning. Besides the medical treatment with acid, or zinci-sozo-iodol, Haug's massage tube rendered very good service. The hearing was rapidly improved, the early Rinné negative became positive, whilst in the beginning BC exceeded AC. The good results were due to the re-

sorptive ability of the sozo-iodol. In many cases inflation and massage were used without result, good results first appearing after about three to four weeks' use of sozo-iodol acid.

The writer recommends the following mixture, in simple thickening of the Mt. without any considerable injection: R, Acidi sozo-iodol, 0.25 gm.; abs. alcohol, 1.00 gm.; ol. ricini, 10.0 gm.

Whenever any considerable vascular injection exists on the Mt., he recommends a 2 per cent. aqueous solution of zinci-sozo-iodol. It is evident that where calcification exists the vibratory ability cannot be increased in the same degree as where no such deposit is present. He also recommends the 2 per cent. solution of zinci-sozo-iodol for the treatment of those cases of myringitis which remain for a time after an attack of otitis media catarrhalis.

In cases of O. M. P., with perforation alone or associated with granulations on the Mt., or in the tympanum, Stetter still prefers the conservative methods of treatment. He cannot conceive the superior advantage of the Stacke-Schwartz operation, while cases so operated upon present themselves at his clinic with suppuration from the meatus, and with large bone wounds behind the ear, the large cavities containing granulation formations. Mentions four cases, so operated upon at Halle and elsewhere, in which the otorrhea persisted with granulations in the middle ear, and in the wound cavity. The results from conservative treatment compare well with the Stacke-Schwartz operation; the latter is not absolutely free from danger, it may produce a meningitis basilaris; the operation should not be done without faultless aseptic and antiseptic arrangements at command; the advantage as to improvement in the hearing, he has not been able to demonstrate.

In thirty-five cases of O. M. P. C. and periostitis of the mastoid, he has seen Wilde's incision alone not only cure the periostitis, but also the purulent otitis media. He, therefore, still countenances Wilde's incision, and only adds opening the mastoid antrum if the bone shows disease or if a bony fistula has already formed. He believes that the Stacke-Schwartz operation is used too much, for the indications are not as yet exactly enough determined.

The existence of cerebral symptoms or of pyemic symptoms eventually require deeper attacks; but as much as possible must be spared in the middle ear so long as the radical operation does not give better results than at present. He believes the good results of Wilde's incision are due to the depletion and the intense skin irritation caused by the incision. Since, in spite of the chronicity of the otitis media, a cure takes place with complete drying up of the suppuration, we must accept that not only the periostitis, but also the carious bony involvements can come to perfect healing.

Wild's incision must always be the first operative attack in all cases of periostitis of the mastoid process following upon acute or chronic otitis media. (VII Jahresbericht Monat. f. Ohrenh., 1896, No. 3.) It is often sufficient for the complete cure.

Among the aural polypi were two cases of regular pavement-celled epithelial carcinoma. Both protruded from the external canal, in two women of 58 and 48 years of age. The tumor was removed in the latter, with the posterior wall of the canal from which it grew; healing occurred and there was no recurrence one year after. In conclusion, S. relates another case which furnishes an example of how carcinoma can develop from a benign aural polyp, in a patient 60 years of age. If these tumors are early and radically removed, together with the site of origin, the prognosis appears to be good.

Stetter has become more and more an advocate of the dry treatment. He uses syringing temporarily only in cases with very viscous, muco-purulent secretion, and cannot warmly enough recommend the dry treatment by Haug's Chinolin-Naphtholated gauze (obtainable from Aubry, Munich,) in small collections of healthy, laudable pus. In recent purulent myringitis and otitis media healing occurs quickly, the gauze being removed and renewed frequently in a day. In O. M. P. C. with large perforation, it is desirable to introduce the end of the soft and smooth gauze tampon into the middle ear. Where the gauze becomes saturated quickly, it should be renewed hourly, and one cannot reckon upon a quicker disappearance of the secretion than is possible by the use of the

syringe. The gauze is, moreover, completely unirritating. Where, because of the nature of the pus, syringing is indicated, S. uses weak lysol solutions, about thirty drops of pure lysol to half a liter of boiled water.

Cauterizes granulations with tri-chloroacetic acid, previously anesthetizing the region with a 5 per cent. cocaine solution; the canal being syringed out immediately afterward, so that the skin does not suffer. *Alderton.*

Delayed Mastoid Operation.

54. STOUT, GEO. C., (*Philadelphia Polyclinic*, July 31, 1897.) A child of five years was treated by the "expectant" method by various physicians, to such an extent that there were three sinuses over the mastoid, which were discharging mal-odorous pus, this also flowing from the external auditory meatus. When the operation was made, a large sequestrum was removed after the first incision. The patient made a good recovery. *Scheppegrell.*

Thyroid Extract in Ear Diseases.

55. VULPIUS, (*Archives Int. de Laryng*, 1896.) Dr. Vulpius recommends thyroid extract in sclerosis and ankylosis of the tympanic cavity when administered in recent cases, one to two five-grain tablets for an adult daily being prescribed. If no improvement develops within two weeks, its use should be abandoned. *Scheppegrell.*

Nervous Deafness in Diphtheria.

56. WILSON, J. C. (*Amer. Jour. of Med. Science*, October, 1897.) A married woman of 33 years complained of sore throat, which was diagnosed as diphtheria, although the bacteriologic investigation gave a negative result. There was moderate fever, occipital headache, tinnitus aurium; on the fourth day, a dense pellicular exudate developed upon the tonsils, conjunctivitis, increasing tinnitus and deafness. Injection of diphtheritic antitoxin serum was made; a few hours later there was total deafness with slight vertigo, great chemosis of the conjunctivæ, gradual defervescence, completed by the fifteenth day, at which date there was a partial paralysis of accommodation, together with paresis of the extensor muscles of the head, persistent tinnitus, slight vertigo, and absolute persistent loss of hearing. Four months later, there

was still total deafness, annoying tinnitus, slight vertigo, impairment of station, and paresis of the extensor muscles of the head.

Scheppegrell.

Intracranial Complications Following Acute Suppurative Inflammation of the Middle Ear.

57. WOODWARD, J. B. (*New York Med. Journal*, October 9, 1897.) The patient suffered from acute suppurative otitis media, which was given the usual treatment. A week later, the patient developed cerebral symptoms followed by stupor; temperature 103, pulse 110.

The mastoid was freely opened, but no pus was found, As the patient was *in extremis*, and there were no special localized symptoms, the wound was packed with gauze and the patient placed in bed. He appeared to react, but died a few hours later. There was no autopsy, but acute lepto-meningitis resulting from direct infection from the middle ear, appeared a justifiable diagnosis.

Scheppegrell.

An Initial Symptom of Sclerosis.

58. ZWARDEMAKER, Utrecht, (*Archives Otology* Vol. XXVI., No. 4.

The author draws attention to a new functional symptom, of importance in the ordinary form of sclerosis (ankylosis of the ossicular chain without involvement of the labyrinth.)

In primary sclerosis, almost without exception, a displacement of the upper tone limit takes place upward above the normal tone limit; it may remain stationary during the first few years then gradually becoming displaced downward. A sclerosed ear will hear during this stage one, two or more half-tones than a normal ear of the same age.

In an examination of fifty cases of sclerosis for the chromatic or continuous (Bezold) scale the result was:

Raised upper-tone limit 32.

Normal upper-tone limit 5.

Lower upper-tone limit 13.

The elevation of the upper-tone limit, as has been stated is a phenomenon in part of the excellent treble-hearing of those suffering with sclerosis. This also permits the perception of the higher vowel tones and the high sililent

sounds which is in sharp contrast to the early loss of the lower octaves. The tuning fork C. free from overtones, when the amplitude of the prongs measures 1 mm. and more, is no longer heard. On the other hand the hearing for the highest octave of Urbantschitsch's harmonica for the f-sharp, fork and for Königs rods is excellent.

The explanation of the initial symptom is that the immediate result of a sclerosing process in the ossicular chain and about the oval window is an impediment to the conducting apparatus. The vibrations *en bloc* are thus more or less injured; with the disappearance of these vibrations, the interference is also done away with. Helmholtz has proved that the interference for the sound waves of greater length can be disregarded, but it is of importance, for waves of sound of shorter length. It is an advantage for the upper-tone limit, when the ocular vibrations are checked and the bone-conduction is increased by the addition of sound waves. The sound waves are conducted through the temporal bone by a round-about path and those, directed in a straight line, arrive at the cochlea at about the same time.

The explanation of this initial symptom is probably the reason why continuous tinnitus is a prominent symptom even when the patient hardly appreciates that he is growing deaf. The tinnitus is influenced by augmentation of the heart's action. It is probably the perception of a vascular murmur which normally could be heard but the sounds of which are not transmitted.

Campbell.

Necropsy of a Case of Pure Verbal Deafness.

59. X, (*Semaine Med.*, December 22, 1897, *Journ. Amer. Med. Ass'n.*, January 22, 1898). For four years the patient's own symptoms were the typical verbal deafness (inability to understand spoken words or to write from dictation), progressing then into aphasia and death four years later. A double and symmetric poly-encephalitis was discovered in the temporal lobes, reduced one-half in size, diminishing in intensity from above downward and from the front backward. This was the only lesion, and is the only case on record in which the lesion was purely cellular.

Scheppegrell.

II.—NOSE AND NASO-PHARYNX.

Contribution to the Study of Bacteriology of Atrophic Rhinitis.

60. ANCHE AND BRINDEL. (*Rev. hebdom. de Laryngol. d'Otol, et de Rhinol*, October 9, 1897). The following species of bacilli have constantly been found in the secretions, as well as in the crusts of ozena:

1. Loewenberg's capsulated diplo-bacilli. 2. Belfonti's and Della Vedova's pseudo-diphtheria bacilli, the small bacilli of Pes-Gradenigo. The author gives twenty-four of his own observations with bacteriologic examinations, and sums up his results, as follows:

1. Loewenberg's diplo-bacilli have been found in all cases of atrophic rhinitis, with or without ozena. It was not found in old, apparently cured cases. It is not the pathologic agent.

2. The pseudo-diphtheritic bacilli have been found eighteen times in twenty cases of beginning atrophic rhinitis. They were missing in two cases of atrophic rhinitis, with ozena. They were found in two out of four of old, very much improved cases. They were not the cause of ozena, but probably saprophytes.

3. The bacillus of Pes-Gradenigo was found only in cases of ozena, yet only in three out of twenty.

4. Electrolysis did not change the bacteriologic fauna of the patients.

Holinger.

Rhinoliths.

61. BARK. (*Revue hebd. de Laryngol, d'Otol et de Rhinol*, October 16, 1897). There are two kinds of rhinoliths. First, deposits of lime salts around a foreign body, or a crust in the nose. The second kind arises in a gland, and gets free later on. They are usually surrounded by granulations. The author reports a case where he removed a rhinolith and completely cured the patient of headache, purulent discharge and epiphora. The center of the stone was the point of a pencil.

Holinger.

Swelling of the Eustachian Tube Lips Causing Obstruction of the Choanæ.

62. BOENNINGHAUS, G. (*Monat. f. Ohrenh.*, March, 1897). B. describes a case in which almost complete closure of both sides of the nose to the entrance of air at times

suddenly occurred. This symptom was dependent upon external influences, invariably occurring in dry and dusty air, only to disappear in good air. There was present also a copious, muco-purulent, inodorless secretion (generally independent of external influences), from both sides of the nose. When the nose was freed from this secretion there was not sufficient nasal stenosis to cause him to resort to mouth breathing except under the above conditions.

This affliction first made its appearance at the age of nine or ten years, following a severe blow on the nose; it then gradually developed in the course of the next year. He had been treated in various ways without any improvement, the condition not being recognized.

Examination.—(The nasal findings are omitted as not being pertinent.—Tr.) From this it was evident that the sudden closure of the nose could not be due to an organized closure. While the patient was sitting near a warm lamp, he said that his nose just then became completely closed. The statement was found to be true. Anterior rhinoscopy showed the same picture as before. But, by posterior rhinoscopy, the naso-pharyngeal cavity was seen to be completely filled by two symmetrically red, smooth, elastic tumors, springing from the lateral walls, and coming so closely together in the middle that only the inferior portion of the septum could be seen. After the use of cocain, these tumors gradually shrunk into the posterior tubal walls; these still remaining, after complete cocainization, somewhat larger than normal, and showing an irregular surface, and they could be moved to and fro with the finger, as a flabby eminence. After the disappearance of these tumors, nasal breathing was again free; thus showing that the obstruction of the same was caused by the swollen tubal eminences. *It was noteworthy that the patient never observed any disturbance of the hearing, nor tinnitus; also, that objectively the Mt. and the hearing were completely normal.* Following cauterization of both tubal lips, the sudden nasal stenosis disappeared.

B. believes the swelling to be of the same nature as in hyperplasia of the inferior turbinated; *e. g.*, a connective tissue stroma, permeated with cavernous cavities. The latter emptied their blood under cocain, and the former

remained behind as a movable flabby sack. A certain enlargement of the tubal eminence is not so rare in chronic pharyngitis, but rarely does it attain to such a degree as above. No such case could be found in the literature.

Practically, from this case, it follows that, where suddenly appearing nasal stenosis (not explainable by swelling of the inferior turbinate), occurs, we should think of such a condition of the tubal eminence. *Alderton.*

On Resection of the Facial and Nasal Wall of the Maxillary Antrum, With Introduction of the Nasal Mucous Membrane Into the Latter, for the Cure of Obstinate Maxillary Empyema.

63. BOENNINGHAUS, GEORG, Breslau. (*Fraenkel's Arch. f. Lar.*, VI., 2, 213.) Kuester's operation for inveterate maxillary empyema (resection of the facial wall, with preservation of the periosteum), is certainly the most promising method of opening into the antrum, but the prognosis varies according to the area of the mucous membrane involved, and, therefore, to be removed. If the whole cavity has been scraped, the walls must again be covered by tissue resembling mucous membrane before secretion ceases and the empyema is cured. The new scar-like "papering" consists of two layers; the lower, of connective tissue, covered by an upper one of epithelium. The ground layer is formed by connective tissue derived from the granulations, which soon begin to shoot up from all parts of the bone; while the epithelial covering starts only from the epithelium of the adjoining mucous membrane across the granulation tissue.

This neighboring area, however, relatively small, is restricted to the operation opening in the vestibule of the mouth, from which the oral mucous membrane can advance, and the natural opening in the middle nasal duct, through which the nasal epithelium can enter. If these invading lines are too small, the granulations luxuriate and hinder cicatrization. To obviate this, the epithelium of the nose must be given greater opportunity for invasion by resection of the nasal antral wall. Furthermore, everything which tends to favor the growth of the granulations, and not of the epithelium, should be left out of the cavity. Even then painstaking after-treatment would be necessary. For this reason the author, after removing the nasal wall,

turns its nasal muco-membranous covering into the cavity and causes it to grow there. Half, or more, is thus papered with healthy mucous membrane. The rest becomes covered, after months, by epithelium spreading from the margins of this flap, and from the operation opening in the vestibule of the mouth.

After tamponade of the choana, on the same side, the patient is anesthetized in the sitting posture. Carious teeth are extracted; their alveoli scraped, if necessary, up to the antrum, but the alveolar process is not resected because that would entail the wearing of an obturator to keep out food. Then the mucous membrane and periosteum of the upper jaw are split, exactly in the vault of the vestibule, from the second incisor to the wisdom tooth. This line corresponds about to the floor of the antrum, and forms an oval aperture on drawing away the lip, through which the operation is done. The anterior aspect of the cheek with the periosteum is then lifted away from the bone; on the inside, to near the pyriform aperture; on the outside, far on to the zygomatic process; and above, to near the infraorbital foramen. Now, only, may the smart bleeding be stopped by tampons. The thin bone in the canine fossa is first perforated with a chisel, and then enough of the anterior wall taken away with a slender, curved forceps to allow examination, not only by palpation, but also by inspection with an electric lamp.

To judge correctly of the condition of the muco-membranous lining requires good illumination, control of the bleeding, and some experience. If the membrane is smooth and but little altered, carious spots, especially on the floor, are scraped, and the operation ended. But, if it appears diseased, so that it cannot possibly return to the normal condition, the bone must be removed; medially, to the nasal wall; laterally, as far as the forceps can bite the bone on the zygomatic process; and above, to the infraorbital foramen, which is spared on account of the nerve. Then the thick lower bony margin is chiselled away close to the antral floor, in order not to impede the advance of the oral epithelium. Then, guided on account of the hemorrhage more by the finger than the eye, the whole cavity is systematically scraped to the bone, and the bleeding stopped

by tamponning. Thus far the operation has been according to the methods of Kuester and Jansen. Now follows the second part, resecting the nasal wall and folding in the mucous membrane.

On turning the head to the healthy side, the wall can be seen to a great extent even by common light. In it, the upper, more membranous part can be differentiated by the finger from the lower, perfectly firm half. At their junction is the horizontal line of insertion of the lower turbinal on the nasal aspect. The wall is removed in layers with a gouge, care being exercised not to injure the nasal mucous membrane. When the gap is sufficiently large, the nasal membrane is lifted, with a finger or curved scissors, completely from the lower wall; the latter is either bitten or chiselled away; completely so, anteriorly, upward and downward; backward, as far as possible. The thin plates of the yielding upper half are removed as much as possible with a sharp spoon by tearing from the nasal membrane, while the upper, superior angle is spared on account of the lachrymal duct. Only the narrow, horizontal, bony plate of the lower turbinal remains. It, too, is bitten off as far as possible with the forceps, after pushing away the mucous membrane. In every case, however, the anterior end of the turbinal is uninjured, and often also the posterior, because they cannot be reached from the antrum. The mucous membrane alone now separates the nose and the cavity. This membrane, which has been injured in several places, is now torn through by dressing forceps entering through the nose; the flaps are pressed into the antral cavity and pressed against the walls by strips of iodoform gauze. Finally, strips are passed in from the mouth.

Most of the work is done under the guidance of the finger. The tampons are removed only after four to five days; if necessary, after cocainization. The flaps will generally be found to be adherent. After-treatment is very simple. A few times daily the patient is to clear the cavity by blowing while closing the nose and drawing away the cheek; twice he is to syringe it. In the interval a little simple gauze is worn in the wound. The cavity can be inspected for months from the mouth. There are no disagreeable after-effects. No deformity remains. If an

opening between the mouth and the cavity should persist, it would not cause any discomfort, and could easily be closed by the cautery, or a little plastic operation. The author never saw any ozena result from the operation, as had been feared by some, nor does he think it possible. The communication is not large enough to make one large cavity. On looking into the nose, nothing can be seen at first of the operation, the anterior end of the lower turbinal obstructing the view. By probing around this end, a large opening can then be felt. A great advantage of this method lies in the greater ease with which so-called multiple empyema of the accessory cavities can be diagnosticated. *A tampon is left for twenty-four hours in the middle nasal meatus only, into which the frontal sinus and the anterior ethmoid cells can now discharge. If this tampon remains free of pus no other disease exists.* If, however, pus is found, further treatment is indicated to guard against reinfection of the maxillary sinus, a most important factor in this treatment. It is impossible for pus to remain in the maxillary sinus and to stagnate. Furthermore, it becomes easy to reach the ethmoid and sphenoid cells, if necessary, just as Jansen has done; attacking them after making a wide opening into anterior wall of the frontal sinus. The histories of three patients operated on by the author by resection of the nasal wall are reported in full:

I.—*Empyema of the frontal and maxillary sinuses, lasting eleven years.* Began acutely on the right side with pyorrhea, which became very profuse and fetid. After a few months, occlusion of the right nostril; frontal headache, periodically intolerable, leading to attempt at suicide. Completely incapacitated for work of any kind. Treated several times by removal of polypi and by burning. February, 1895, the patient, a lady of 28 years, presented the following condition: Right frontal sinus painful on percussion and pressure; right nostril completely obstructed; lower turbinal greatly swollen; upper half of nose completely filled with polypi, between which creamy, fetid pus is seen; teeth, well kept and preserved, never gave her pain. Both the frontal and maxillary sinuses could be syringed through the natural openings; pus thus removed from both. Operated upon June 20, 1895. Infraorbital

nerve torn through; therefore, complete anesthesia of cheek after return of consciousness. Tampons removed on fifth day. Flaps adherent, filling nearly entirely the inner half of cavity. Discharged on fourteenth day; controlled frequently; after-treatment only by patient herself. Cicatrization of external half of cavity progressed favorably and was completed by the middle of September. The cavity has been dry since that time. Now and then a single drop of pus on the tampon in the middle nasal duct; this, too, ceased since end of January. Condition on March 6, 1896: Facial opening contracted to a fine fistula. No pus can be obtained by syringing through it; no pus in nose. Opening in nasal wall, measured with probe, about 2 cm. wide, reaching from the floor to the roof of the cavity. Sensation nearly completely restored in cheek. Good condition generally.

II.—*Empyema of the frontal, ethmoid and maxillary cells, lasting six years.* December, 1894: Strong female patient of 38 years. Treated for ten months through alveolar opening; free from pus during day, but great annoyance at night. Operation on October 16, 1895. Cavity thoroughly scraped. On fourth day thick fetid pus from nose; tampons, therefore, removed. Cavity showed croupous covering, but without fever. Membrane extruded after eight days. Flap of mucous membrane, nevertheless, adherent. Some after treatment. By end of November, cavity covered with exception of roof; nevertheless, profuse flow of pus. Multiple empyema suspected; tamponade of middle meatus for twelve hours. As the tampon carries pus, resection of middle turbinal. Frontal sinus can now be syringed; water shows milky turbidity. Systematic irrigation of frontal sinus. Water free from pus after a short time. March 6, 1896: Opening in facial wall large enough to permit introduction of laryngeal mirror of $1\frac{1}{3}$ cm. diameter. Cavity greatly diminished in size, apparently through apposition of bone, covered nasally with mucous membrane, laterally, and on roof, with scar which is partly star-shaped. Cavity free from secretion, although not irrigated for five days. A small crust in the hiatus. Frontal sinus free from pus. Maxillary sinus is, therefore, surely cured; frontal sinus, probably; the slight secretion seems to come

from an anterior ethmoidal cell. Opening in resected nasal wall, $2\frac{1}{2}$ cm. wide, reaching from floor to roof of cavity.

III.—*Empyema of left maxillary antrum, lasting six years, complicated with infraorbital neuralgia.* Operation October 29, 1895. Removal of nerve from facial opening by turning and tearing. Whole cavity scraped. Neuralgia cured immediately. Cheek without sensation, but pains a little on pressure. March 6, 1896: Sensation returning gradually, but no neuralgia. Everywhere mucous membrane or scar tissue. A little secretion from the molar recess; a middle-sized crust removed by syringing every two or three days. Probatory tampon in middle meatus remains free from pus.

Note.—February, 1897: There is just a little secretion from the recess. Structure of lachrymal duct at nasal end cured after slitting the punctum and probing the canal a few times.

Morgenthau.

The Morphology and Pathology of the Pharyngeal Pouch of Rathke.

64. CARWARDINE, Bristol. (*Bristol Medico-Chirurgical Journal*, December, 1897.) "The pouch is formed from the mouth of the embryo before the communication takes place between the pharynx and foregut; and it meets a similar pouch, the infundibulum, from the third ventricle of the brain. In this way the posterior lobe of the pituitary body comes to be formed from the ventricular diverticulum, and the anterior lobe of the pituitary body from the pharyngeal pouch."

The best part of the pathological division of the paper is its conclusion: "Adenoids, like Cæsar, have been regarded as beings out of place.

"Imperious Cæsar, dead and turned to clay,
Might stop a hole to keep the wind away."

"But, rightly considered, these obstructions bear the impress of a former glory, when, as with a coronet, they encircled the archaic mouth."

Hardie.

Membranous Rhinitis. Diphtheritic and Non-Diphtheritic.

65. CASSELBERRY, W. E. (*Medicine*, July, 1897.) Membranous rhinitis is an acute inflammation of the nasal passages, accompanied by a white membranous exudate, which covers a whole or part of the inflamed mucosa. The exu-

date produced by nasal cauterization is a type of this form of inflammation. As in the throat, this exudate may be the result of pathogenic microorganisms.

Of twenty-two cases examined by Edmund Meyer, in thirteen the virulent diphtheria bacilli were present, the remainder presenting only the ordinary pyrogenic microorganisms. The clinical course in both series of cases was the same. The disease usually continues about three weeks, this period not being varied in consequence of treatment. In this condition, the author has used various preparations, such as resorcin, menthol, creolin, and alkaline and antiseptic sprays.

[The use of a 10 per cent. solution of peroxide of hydrogen in an alkaline solution has, in the practice of the reporter, produced marked improvement within three or four days, and usually a cure within eight days. In one case, in which this method did not give prompt results, two doses of diphtheritic antitoxin (1,000 units each), were injected, the exudate disappearing on the third day. A bacteriologic examination had shown well-defined Klebs-Loeffler bacilli.—Scheppegegrell.] *Scheppegegrell.*

Acute Inflammation of the Antrum of Highmore.

66. COBB, FREDERICK C. (*Boston Medical and Surgical Journal*, December, 1897.) The article refers especially to the acute pus-formation in the antrum with a more or less patulous condition of the antral opening. The author maintains that the antrum may, and often does, recover without other treatment than keeping the turbinate contracted and the nose as clean as possible.

Statistics show a most remarkable power of recovery in the mucous membrane of the antrum, as illustrated when the cause of purulency is a foreign body. Unless symptoms of pressure, or great pain, chills, etc., coexist with empyema of the antrum, it would be wise to give nature a chance to heal it, the puncture being reserved until it has been shown that the discharge exhibits no tendency to disappear after the acute symptoms are over.

Scheppegegrell.

Impairment of the Voice in Singers Arising From the Naso-Pharynx.

67. COURTADE. (*Arch. internat de Laryngol. d'Otol et de Rhinology*, November and December, 1897.) The voice is

produced by three parts; the blowing is done by the lungs, the vibrating is done by the vocal chords, and the resounding by the resounding box, the different cavities of the mouth and nose. The author gives an explanation of the influence of these different factors on the voice, and the resulting changes if any one part is diseased. He tells of several observations where the treatment of slight nasal troubles restored the voice of singers. *Holinger.*

Digestive Disorders Caused by Naso-Pharyngeal Catarrh.

68. DALY, W. H., Pittsburg, (*Maryland Medical Journal*, November 13, 1897.)

The evil effects of swallowing naso-pharyngeal secretions are pointed out. The nervous theory of dyspepsia is severely criticised, the author believing that, in the majority of cases, the neurasthenia which is present is due to the stomachic and intestinal functional disease with auto-infection from ptomaines, or leucomaines or both, and that the first cause of many of these cases is naso-pharyngeal catarrh with its bacilli extending to the stomach, liver and intestines, either by continuity of tissue or by swallowing the infected secretion from the naso-pharynx. *Scheppegrell.*

Report of a Case of Two Hundred and Seven Screw Worms Taken From the Nose.

69. FOSTER, HAL., (*Laryngoscope*, p. 341 1897.)

The patient was a woman, aged 50, who had been a sufferer from atrophic rhinitis twenty years after being seized with an epileptic convulsion while in her yard she was taken with itching of the nasal membranes, frontal headache and sneezing, followed by epistaxis and accompanied by a very offensive discharge. Examination demonstrated the presence of screw worms. Chloroform was used as an inhalation; likewise diluted with an equal amount of hot water it was syringed into the nostrils. In all 207 worms were removed, mainly by forceps.

Loeb.

A Case of Tubercular Empyema of the Maxillary Sinus. Recovery After Operation From the Fossa Canina.

70. GAUDIER, (*Rev. Hebdomadaire de Laryngologie*, October 30, 1897.)

The patient is a whitewasher of 40 years with a tubercular history. He blew pus from his left nostril, which

later on smelled badly. Besides, especially in the morning, there was some swelling of the left cheek and "infraorbital neuralgia." Both transillumination and puncture gave positive results. The tubercular nature of the pus was recognized, especially after a perforation of the sinus outside was noticed. After tamponing the nasopharynx, the outer wall of the sinus was removed and the whole cavity curetted. The patient made a good recovery. The author gives four observations of other authors, but while his was primary, the other four were all secondary tuberculosis.

Holinger.

The Texas Screw Worm and Its Invasion of the Nasal Cavities.

71. GOLDSTEIN, M. A., *Laryngoscope*, 1897, p. 335.

The writer describes the case of a patient who was attacked with sudden and acute pain in the nose. One night he was awakened by a buzzing in the nose, which he thought might have been caused by a fly. Examination revealed in the left nasal cavity a dense light yellow mass which proved to be the eggs of the *Comptosia* (*Lucillia*) *Macellaria*. The entire mass was removed by curette. Forty-eight hours later the nose was found in a violent state of acute inflammation and many screw worms were noticed deeply imbedded in the nasal mucosa. Later the region of the frontal sinus and ears became involved in the inflammation. The patient's temperature and pulse gave evidence of septic fever. An abscess was discovered over the dorsum of the nose; on the sixth day an examination with a probe revealed a communication between the abscess cavity and the nose. In three weeks the patient was discharged cured. The writer made some investigations which disproved in some measure the findings of the Louisiana and Texas Experiment Stations.

Loeb.

Hypertrophy of the Pharyngeal Tonsil.

72. GRADENIGO, G., Turin, (*Annales des mal. de l'or.*, etc., August, 1897.)

Of the patients under 15 years of age attending the ear, nose and throat clinics, thirty-six per cent. were affected with hypertrophied pharyngeal tonsil.

The term, hypertrophy of the pharyngeal tonsil, describes

more exactly the anatomic lesion than the old one of adenoid vegetations.

It consists in a total hypertrophy of the normal gland. The description of the adenoid type is well known. This type is not always accompanied by a hypertrophy of the pharyngeal tonsil, but on the contrary, especially in early childhood, one may find considerable hypertrophy of this tonsil without the adenoid type being present.

The greatest danger in this affection comes without doubt from the aural complications, which may be either catarrhal or purulent. It is especially in the infantile catarrhal forms that the influence of the pharyngeal tonsil is felt, hypertrophy being found in 69.1 per cent. of males and 69.8 of females.

Otitis media purulenta is accompanied much less frequently by hypertrophy (boys 20 per cent., girls 19 per cent.)

The hypertrophy existed in 36 per cent. of the cases of otitis media acuta involving the internal ear. One is generally inclined to believe that the spontaneous involution of the hypertrophic tonsil, which oftenest occurs after fifteen years, suffices to give a transitory character even to secondary auditory disturbances. Clinical observation shows, on the contrary, that the involution is almost total and that the hypertrophy leaves a chronic posterior rhino-pharyngitis which is resistant to treatment: again, that the aural affections existing since infancy acquires, in the long space of time before physiologic disappearance of the tumor, an individuality of its own and tends to progress on that account. Such is the genesis of progressive deafness, of middle ear sclerosis, at least in the majority of cases.

Alderton.

**Rhinitis Atrophica Foetida in Its Relation to Diseases
of the Accessory Sinuses.**

73. HARRIS, T. J., New York. (*Medical Record*, October 9, 1897.) The author gives a careful review of the theory of Ludwig Grünwald, who maintained that all cases of ozena were the result of focal disease, that is, areas of suppuration elsewhere than in the nose, as for instance, in one or more of the accessory sinuses. Dr. Harris considers Grünwald's argument very reasonable in the main.

From an analysis of ten cases, the author believes that there is no single constant cause for ozena; it is rightly to be regarded only as a symptom.

That a genuine atrophy, until recently unproved, from Loewenberg's studies confirmed by Abel and Paulsen, in all probability does exist.

That focal disease, including especially disease of the accessory sinuses, while not the only cause, is a very important and common cause.

And, as a most practical conclusion for the rhinologist, each case of ozena, in addition to being treated with the proper constitutional and local measures, is to be thoroughly and repeatedly examined for evidence of such sinus involvement. *Scheppegrell.*

The Nasal Hydrorrhea.

74. JANKELEVITCH. (*Rev. hebdomadaire de Lar., d'Otol. et de Rhinol.*, December 18, 1897.) The author collected eighteen cases from literature. He thinks that hydrorrhea is a nervous disease, similar to hay fever. For treatment, he advises massage every day, later on twice a day. The instrument of M. Schmidt allows the patient to do the massage himself. Galvano-cautery is contra-indicated. Interstitial electrolysis is successful once in a while, but not regularly. *Holinger.*

Some Remarks on Atrophic Rhinitis.

75. JOHNSON, J. S. (*The Physician and Surgeon*, September, 1897.) A review of the various methods of treating this affection. The author believes that it will not be the discovery of a new remedy or principle in practice, but rather a systematic and thorough use of the already known remedies and procedures, which will prove the most efficacious in this disease. *Scheppegrell.*

Large Pulsating Vessels in the Pharynx.

76. KELLY, Glasgow. (*Glasgow Medical Journal*, January, 1898.) Kelly considers the condition commoner than the number of reported cases would seem to imply. He reports four cases in patients 75, 72, 75 and 22. He believes that some, if not all, of these cases of large pulsating vessels in the pharynx, are due to a tortuous condition of the internal carotid, but offers no opinion as to

the probable cause. A drawing of a specimen having tortuous carotids in the anatomical museum of Glasgow University, illustrates the article.

Hardie.

New Facts About the Ogston-Luc Treatment for Radical Cure of the Empyema of the Frontal Sinus.—Critical Examination of Failures and Accidents From Its Wrong Application.

77. LUC. (*Archives International. de Laryngol., d'Otol. et de Rhinol.*, September and October, 1897. Soc. franc d'otol., May 4, 1897.) The method of operating is opening of the sinus, curetting, immediate and complete stitching of the wound, and drainage in the nose. The failures are accredited to lack of asepsis, or incomplete curetting. Sometimes the sinus extends very far to the sides. Then the outer plate of bone has to be removed in order to scrape out every corner. Often both sinuses are involved, but only one causes symptoms. Therefore, Luc usually makes medial incisions as taught by Mayo-Collier, which allow the examination of both sides. Five histories of patients illustrate the author's statements.

Holinger.

On the Physiologic and Pathologic Relations Between the Nose and the Sexual Apparatus of Man.

78. MACKENZIE, J. N. (*British. Med. Journal*, November 27, 1897.) As the results of his clinical observations, the author offers the following conclusions:

1. In a certain proportion of women whose nasal organs are healthy, engorgement of the nasal cavernous tissue appears with unvarying regularity during the menstrual epoch, the swelling of the membrane subsiding with the cessation of the catamenial flow.

2. In some cases of irregular menstruation, in which the individual occasionally omits a menstrual period without external flow at such times, the nasal erectile body becomes swollen and turgid, as in the periods when all the external evidence of menstruation is present.

3. The monthly turgescence of the nasal corpora cavernosa may be bilateral or confined to one side, the swelling appearing first on one side and then the other, the alternation varying with the epoch.

4. The periodical erection may be inconsiderable and give rise to little or no inconvenience, or on the other

hand, the swollen bodies may occlude the nostril and awaken phenomena of a so-called reflex nature, such as coughing, sneezing, etc.

5. In some cases there seems to be a direct relationship between this periodical engorgement of the natural erectile bodies, and the phenomena referable to the head which so often accompany the consummation of the menstrual act.

6. As a natural consequence of the phenomena above described, the nasal mucous membrane becomes at such periods more susceptible to reflex producing impressions and is, therefore, more easily influenced by mechanical, electric, thermic, and chemical irritation.

7. The conditions (engorgement and increased irritability of the nasal mucous membrane) indicated above, together with the phenomena that accompany them, are also found during pregnancy, at periods corresponding to that of the menstrual flow. There is also reason to believe that similar phenomena occur during lactation and the menopause.

Scheppegrell.

Amaurosis Following Intra-nasal Operation, with a Review of Some of the Uncommon Results of Operations Within the Nose.

79. PACKARD, FRANCIS R., Philadelphia. (*Medical News*, October 9, 1897.) A cold wire snare was used to remove a small piece of hypertrophied tissue from the anterior extremity of the middle turbinated body of the left side of a patient 36 years of age, who suffered from hypertrophic rhinitis. Two days later, the patient suddenly became blind in the left eye, this disappearing thirty minutes afterward without treatment. A careful examination failed to reveal the cause of the disturbance of vision.

The article concludes with a number of similar records in medical literature.

Scheppegrell.

Some Reflex Troubles Caused by Swollen Middle Turbinated Bodies.

80. PALMER, A. C., Richmond, Va. (*Virginia Medical Monthly*, September 24, 1897.) The author believes that the prostrated nervous condition following gripe is in nearly all cases due to the swelling of the middle turbinated bodies, causing pressure upon the septum and by irritation of the highly sensitive membrane producing reflex influences on all parts of the nervous system. It also

causes the middle fossa to become a comparatively closed cavity, regarding the elimination of the secretions. He advises the application of the electro-cautery.

Scheppegrell.

Empyema of the Antrum in an Infant.

81. POWER, D'ARCY, (*The Lancet*, November 6, 1897.)

Dr. Power reports the case of child of eight months, who was admitted into the Victoria Hospital in a very wasted condition and with an abscess discharging at the lower part of the right eyelid. An examination with a probe showed that there was an area of dead bone upon the surface of the superior maxilla. Pus was also exuding from the alveolar borders, but no definite opening could be detected. This condition was supposed to be due to the forceps delivery, but it was not until the child was about a month old that the abscess was noticed. In spite of treatment the child died thirteen days later. An autopsy showed a small abscess in the right lung.

Scheppegrell.

Nasal Bougies and Drainage Tubes.

82. PYNCHON, E., Chicago, (*New York Medical Journal*, October 23, 1897.)

The author describes a new drainage tube made of red vulcanite and so constructed that it will fit the peculiar formation of the nostril. These are of use not only for drainage purposes, but also in the reduction of a recently fractured septum. They are made by Messrs. Tiemann & Co., New York.

Scheppegrell.

Contribution to the Operative Treatment of the Inflammations of the Frontal Sinus.

83. RIVIERE, A., (*Rev. hebdomadaire de laryngologie et de Rhinologie*, December 25, 1897.)

This paper is merely the report of a patient who was operated upon several years ago by the chief of the author. There is nothing original in it.

Holinger.

A Conservative Operation for the Removal of Nasal Synechia.

84. SCHPEGEGRELL, W., (*Laryngoscope*, January 1898.)
A celluloid sound of the smallest diameter, such as is used with the catheter for the Eustachian tube, is bent to

an acute angle one and a half inches from the end, or at other lengths, depending upon the location and size of the synechia. Although bent at this angle, the sound retains considerable resiliency, and if it be now passed into the nostril below the synechia, it is compressed in its passage, but promptly resumes its original position as soon as it passes the adhering membranes. The sound is now gently withdrawn, and the end will appear in the nostril above the synechia. This end is then drawn forward by means of an alligator forceps, and a fine silk cord, which is tied to the end of the probe, is thus drawn around the synechia. A piece of steel piano wire such as is used for the cold snare, is then drawn by means of this cord around the Synechia, the wire being bent to an acute angle, where it is attached to the silk, so as to prevent laceration of the tissues in its passage through the nostril. This wire is then attached to any one of the cold snares used for nasal operations, and, by gradually tightening the wire, the synechia is removed. Cocaine is applied before the operation, and may also be applied during the progress of the operation, in this manner rendering it entirely painless.

A small sheet of the thinnest white celluloid is then inserted into the nostril, the celluloid being cut to such a size and form that its lower edge will rest on the floor of the nostril, its upper edge reaching above the synechia, and its anterior edge very near the anterior orifice of the nose, so that, in blowing or sneezing, the celluloid will always separate the raw surfaces. The nostril requires no further treatment, all that is necessary being the patient should use an alkaline and antiseptic nose-wash two or three times daily.

After the first day the patient is unconscious of any foreign body in his nostril; the celluloid does not absorb septic material nor give rise to an irritation. The celluloid used is very thin and white, both of these specifications being for an object. If the celluloid is heavier it is more difficult to apply, and there is a greater tendency from its weight to fall into the naso-pharynx during sleep; if the celluloid is transparent, it is difficult to locate it in the nostril to see if it is in its proper position. On account of its innocuous qualities the celluloid may be left in position somewhat longer than is necessary. * *Loeb.*

A Case of Fatal Primary Hemorrhage Following Removal of Adenoid Vegetations.

85. SCHMIEGELOW, E., (*Monat. f. Ohrenh.*, March, 1897.) In a child, 12 years old; a mouth breather, with scrofulous diathesis; naso-pharynx filled with adenoid vegetations; enlarged tonsils. Exploration with finger was slightly bloody.

The growth was removed with Gottstein's curette, introduced a number of times. Suddenly there occurred a very profuse hemorrhage from the nose and mouth of light arterial blood. The patient collapsed, was put on the table and an iodoform-gauze tampon was applied, but in spite of this and of subcutaneous and intravenous salt-water injection, respiration did not return.

It all occurred very quickly, two or three times the blood flowed in a thick stream and then the patient sank altogether; the loss of blood amounted to about 500 gm.

Autopsy: The cerebral vessels were well filled (the patient had been inverted and the extremities bandaged) all internal organs were extraordinarily anemic; the right lateral wall of the naso-pharynx was extensively wounded, and in the wound were remnants of hemorrhage; there was a pointed rupture of the internal carotid just before it entered the carotid canal in the petrous portion. There was no lesion, on the other hand, of the vessel at a point corresponding with the lesion of the pharyngeal wall. Numerous glands existed behind the vascular sheath. The wall of the vessel was microscopically normal.

How was the internal carotid burst? It is probable that the glands, pressing the internal carotid toward the pharyngeal wall, were responsible; the Gottstein curette invading the lateral pharyngeal wall and exercising such a strong pressure upon the internal carotid as to cause the latter to burst close to the cranium.

Previously reported cases of fatal hemorrhage: Bryson Delavan, (*Am. Laryng. Ass.*, 1889); Cartaz, (*La Semaine Med.*, May 28, 1890); Woakes, (*Post-nasal Catarrh*, 1884, p. 162); Ruault, Gellé and Beausoleil, (*Bull. de la Soc. Franc. d'ot.*, etc., 1895, p. 25.) Thomas French knows of three cases in America, besides that of Delavan.

Alderton.

Syphilis of the Nose With Almost Complete Destruction of the Septum and Conservation of the Form of the Nose.

86. TAPTAS, Constantinople. (*Rev. hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie*, October 16, 1897.) Patient, of 37 years, complains of headache and pain in his nose. Anterior rhinoscopy shows that almost the whole of the septum and turbinated bodies are missing. The nose is filled with ill smelling crusts. Two weeks after the beginning of treatment (when this case was reported) the patient had improved and the nose kept its form.

Holinger.

Nasal Micro-Organisms.

87. THOMPSON AND HEWLETT. (*Medical Record*, September 25, 1897.) As a result of their investigations, they state that in the dust and crust of mucous and debris deposits among the vibrissæ of the healthy subject, micro-organisms are never absent and are usually abundant. On the Schneiderian membrane, however, under normal conditions, micro-organisms are never plentiful, and in more than 80 per cent. of the cases no organisms whatever are to be found, and the mucus is completely sterile. The appearance of pathogenic organisms is so infrequent that their presence on the Schneiderian membrane may be regarded as exceptional.

Scheppegrell.

Epistaxis and Its Management.

88. TRASK, S., San Francisco. (*Pacific Medical Journal*, July, 1897.) Nasal hemorrhage is most frequently found at the union of the sphenopalatine with the inferior artery of the septum, about one inch inward from the vestibule. The application of argentic nitrate fused to a silver probe, is usually effective. If this is not sufficient, the application of a mesh of antiseptic gauze, into which finely pulverized subsulphate of iron has been rubbed, is recommended. The injection of iron solutions and posterior tamponing should be avoided.

In obstinate cases, the author recommends a drop of fuming nitric acid applied by means of a wooden applicator to the bleeding spot, the patient in the meanwhile exhaling strongly from the nose. The minute eschar which is formed, drops within a few days. Where the bleeding is due to systemic causes, general treatment should be

given. Chloride of calcium has recently been recommended as a useful agent.

Scheppegrell.

The Nasal Septum.

89. WADSWORTH, WARREN, Detroit. (*The Physician and Surgeon*, August, 1897.) A review of the anatomy of the septum, and the cause and treatment of septal deformities.

Scheppegrell.

The Physiologic Psychology of Smelling.

90. X. (*Jour. Amer. Med. Ass'n.*, January 8, 1897.) Reference is made to the investigations of Piesse, Zwaardemaker and Nagel, who have attempted to systematize this subject, without, however, any very successful results. The sense of smell is probably only an imperfect relic of what it once was in the early stages of evolution, but it still has its practical value, and whatever aids to complete our understanding of its physiology is a welcome acquisition. At present, much is still obscure, and the field is yet an open one for further research.

Scheppegrell.

III.—MOUTH AND PHARYNX.

Hypertrophied Faucial Tonsils.

91. BARNHILL, J. F. (*Medical Record*, October 23, 1897.) The author classifies the cases as follows: 1. Those in which the patient claims never to have suffered inconvenience from the tonsil. 2. Those in which there is quinsy or tonsillitis once, or oftener each year. 3. Those in which there is a small, yet pathologic gland. In all cases the diseased crypts should be cleaned out. Among the untoward results of pathologic tonsils are that they may either cause reflex neurosis, or act as obstructive bodies, absorbents, and also as auto-infectious bodies.

Scheppegrell.

Surgery of the Faucial Tonsils.

92. DABNEY, S. G. (*American Practitioner and News*, November 13, 1897.) A lady who had long suffered from persistent cough, and who had been much alarmed for fear that she had contracted phthisis, was entirely relieved

by the cure of a chronic follicular inflammation of the tonsils. In the so-called atrophic tonsil, the thorough opening of the crypts by deep incision with the electro-cautery is preferred.

Scheppegrell.

Chronic Hypertrophy of the Lingual Tonsil. Clinical, Physiological and Pathological Review

93. DIDSBURY. (*Arch. internat. de Laryngol., d'Otol. et de Rhinol.*, September and October, 1897.) The author describes the embryology and physiology of the part. He considers the lingual tonsils as a normal part of Waldeyer's lymphatic ring, and not as an anomaly. The anatomy is given very carefully with the vessels and the nerve supply. The author mentions that Scheppegrell proved that women are predisposed to this disease. People from 19 to 30 are most often, from 30 to 50 only rarely, attacked. Rheumatism and other causes have been given. The symptoms of hypertrophy of the lingual tonsil are numerous; choking, feeling of foreign body, etc. The author lays stress on the lack of motility of the epiglottis, and difficulty in singing. Spitting of little threads of blood in coughing, is usually due to hypertrophy of the lingual tonsil. Secondary syphilis is a frequent affection. The diagnosis is easily made with the laryngeal mirror. The treatment consists in destroying the tissue with the cautery. The author reports a case of hysterical attacks cured after galvano-cautery treatment of the lingual tonsil.

Holinger.

Tonsillitis and Douloureux with Reference to Clinical Treatment.

94. FABRICIUS, F. W., New York. (*Virginia Medical Monthly*, September 24, 1897.) In tonsillitis, salicylate of sodium is a most efficient remedy and an almost specific agent in the acute variety. It should be administered in milk or mineral waters, and just after eating. Fifteen grs. of salicylate of sodium and 20 grs. of bicarbonate of soda every three hours will usually effect a cure in 24 to 36 hours. In severe cases, the dose should be given more frequently.

For chronic cases subject to exacerbations, the author advises the following:

R	Tinct. aconit. rad.	- - -	ʒss
	Tinct. bellad.	- - -	ʒi
	Tinct. ferri chlo.	- - -	ʒii
	Tinct. iod. co.	- - -	ʒiiss
	Glycerin	- - -	q. s. ʒj
M. S. Topical; apply with a brush.			

Scheppegregell.

Two Cases of Papillomata of the Soft Palate.

95. GOOD. (*Arch. intern. de Laryngologie, d'Otol. de Rhinol.*, November and December, 1897.) The author first explains what he means by papilloma of the soft palate, and gives the anatomy of the soft palate, which consists of eight layers. The microscopical diagnosis of these growths proved that they contained very few glandular elements. The treatment was removal of the growths with the hot snare. At the end he gives a list of thirty-nine articles on this subject from English, French, Italian and Belgian literature.

Holinger.

Chronic Abscess of the Tonsils.

96. HUGHES, PAUL. (*Rev. hebdom. de Lar. d'Otol. et de Rhin.*, October 30, 1897.) The chronic abscesses of the tonsils do not arise from the crypts, but in the tissue of the tonsils and surroundings. The main symptom is spitting of pus temporarily, pain on rapid swallowing, and sensation of foreign body in the throat. Sometimes the patient complained about coughing, hoarseness or nasal voice, stomach troubles, or ear symptoms. For treatment Hughes advises splitting of the abscess with the galvano-cautery and curetting with the same instrument kept dark red. Four observations of the author confirm his statements.

Holinger.

A Remarkable Angio-Neurosis of the Tongue, Due to the Application of Chromic Acid.

97. LEWIS, ROBERT, JR., New York. (*New York Medical Journal*, October 2, 1897.) A woman of 48 years suffered from chronic otitis media purulenta of the left side. The opening in the tympanic membrane was filled with granulation tissue, this being removed by curetting and the base cauterized with chromic acid. When the patient

was next seen, she reported that the night following the operation her tongue became so swollen that she could hardly breathe, this lasting for several hours.

Six months later, it was found necessary to repeat the application. Twelve hours afterward, her tongue began to swell so rapidly that within two hours she could not protrude it or close her jaws; dyspnoea was so marked that tracheotomy was seriously considered. Purgatives and local applications, however, caused the edema to subside in about three hours' time, and within twenty-four hours to disappear. In addition to the glossal edema, there were areas of edema in several other portions of the body. The case was supposed to be one of angio-neurotic edema, due to too active stimulation of the chorda tympani nerve, or to undue mental excitement. *Scheppegrell.*

Sarcoma of the Tonsil, Report of a Case.

98. MARVIN, A. H. (*Cleveland Medical Gazette*, September, 1897.) Sarcoma of the tonsil is not as rare as is generally thought, fifty cases having already been reported. After a careful analysis of the pathology and diagnosis of this condition, the author states that the treatment is surgical, either through the mouth or by external operation.

He reports a case in which the malignant growth of the tonsil was successfully removed by means of the electro-cautery knife under cocain anesthesia. A microscopic examination showed it to be a small spindle-celled sarcoma. Six months after there had been no recurrence.

Scheppegrell.

Arterial Varix of the Lower Lip; Involving the Coronary Arteries.—Examination Under Cocain Anesthesia.

99. MATAS, RUDOLPH, New Orleans. (*Medical News*, August 14, 1897.) A cornet player complained of a peculiar pulsating swelling, which affected his lower lip. On examination, a slight elevation in front of the *frenum labii* was revealed, this pulsating distinctly. The cause of the trouble was evidently an enlarged coronary artery, which was especially dilated at the usual point of anastomotic communication in the middle line. The enlargement at this point caused the usually small and invisible coronary arteries to feel as large as the facial artery itself. Under co-

cain anesthesia the chief artery was removed, and two collateral ramifications ligated. The vessel walls were unusually thick and were undoubtedly in a state of endarteritis.

Scheppegrell.

Chancre of the Lip Probably Acquired Through the Use of a "Rouge Stick."

100. MONTGOMERY, D. W. (*Medical News*, December 4, 1897.) The lesion on the lip was undoubtedly a chancre, as demonstrated by the subsequent history of the case. The "rouge stick" is a cylinder composed of a firm red ointment, which was used in the hair-dressing establishment which the patient patronized. This was applied to the lips of the various customers after first having been moistened by the lips of the attendant (!).

Scheppegrell.

A Large Angioma of the Lip.

101. MORRIS, ROBERT T. (*New York Medical Journal*, July 24, 1897.) The patient, aged 32 years, had at birth a small naevus of the upper lip, which was unimportant for twenty years, until an attempt was made to remove it. Ten years afterward setons were introduced through the lip, as many as thirty-five being employed simultaneously. This stimulated the development of the tumor, and it increased in size very rapidly and hung down below the chin and presented a malignant appearance.

The tumor was removed by means of a scalpel, and a new lip made by taking skin flaps from the cheeks, recovery taking place without marked deformity. One year later there had been no recurrence.

Scheppegrell.

Hemiatrophy of the Tongue.

102. MOYER, HAROLD N., Chicago. (*New York Medical Journal*, August 7, 1897.) Dr. Moyer describes the case of a young man, 25 years of age, who received a wound in the left cheek, but the bullet could not be located. Immediately after the accident the jaws were firmly locked, and at the end of three days they could only be opened sufficiently to receive small particles of food. Three months elapsed before the jaws could be completely opened. The patient could not masticate food as well on the left side of his mouth as on the right side, this necessitating the removal of the collection of food with a spoon.

A year later it was noticed that the left side of the tongue was becoming smaller and seemed to be drawn to one side. There was also difficulty of articulation and some salivation. Two years later the symptoms had improved, but speech was slow. Tests proved that taste was completely abolished on the anterior and posterior surfaces of the left



half of the tongue, but the tactile sense remained. The accompanying figure shows the atrophied condition of the tongue. The dark spot on the left cheek marks the wound of the entrance of the bullet. *Scheppegrell.*

Traumatic Paralysis of the Soft Plate.

103. RAUGE, (*Arch. intern. de Larynol. d'Otol. et de Rhinol.*, September and October 1897). The author describes a case of paralysis of the soft plate, caused by traumatism of the head and neck. A man, of 59, fell from a wagon and struck with the left half of his head on the edge of a box. He was unconscious for an hour. Besides a small hemorrhage from his nose no other symptoms but the paralysis could be found. The author investigates the anatomy and especially the innervation of the soft plate, and finds it very complicated. The chances are that the lesion is 1 peripheral, 2 intracranial, 3 intrabulbar or cerebral in the grey substance or the intracerebral

fibres. He comes to no definite conclusion. [The abstractor is astonished that a hysterical paralysis is not even mentioned by the author.]

Holinger.

Difficult Case of Late Hereditary Syphilis.

104. SENDZIAK, (*Revue hebd. de Laryngol d'Otol et de Rhinol* January 8, 1898). The patient is a girl of 15. She was weak since childhood. The cervical glands were swollen and the general condition is similar to consumption. She had ulcerations of the roof of the mouth with several perforations into the nose, ozsena, and inflammations of the eyes, which destroyed her vision almost completely. She was in the hands of several doctors and treated with As. etc., without result, till the author began giving KI. and HG. She now enjoys good health.

Holinger.

Chronically Diseased Tonsils.

105. WHITTAKER, H. W., Columbus, (*Medical Record*, October 23, 1897). Hypertrophy of the tonsils is found in the child, and hyperplasia in the adult. In the treatment it is necessary to consider the hygienic, prophylactic, local constitutional and surgical measure.

Scheppegrell.

IV.—LARYNX.

Malignant Tumor of the Larynx in a Patient with Tuberculosis of the Lungs.

106. BARR, Nice. (*Archiv. internationales de Laryngol., d'Otol., et de Rhinol.*, November and December, 1897.) Malignant tumors of the larynx are rare occurrences in consumptives. The author's patient was 65 years old, and was treated for a long time for consumption. Tubercle bacilli had been found in great numbers. A tumor of the size of a pea was seen at the left plica ary-epiglottico. No excision was allowed for microscopical examination. Thirteen months later the patient died with symptoms of stenosis of the larynx and esophagus. The author is in favor of operating on a tubercular laryngitis, but against operation for a cancer. He calls this standpoint surer and more honest.

Holinger.

On the Weight of the Laryngeal Cartilages and the Proportions of Dried Substance, Fat and Ashes.

107. BERGEAT, H., Munich. (*Fraenkel's Arch. f. Laryn.*, VI., 2, 198.) The object of the investigation was to determine, by weighing the rate of growth of the cartilaginous structure of the human larynx; the varieties of the distribution of weight, especially in the two sexes; the extent of the lime deposits. Although the author could not completely carry out his plans, he publishes noteworthy results in regard to ash residue, which have a bearing on the newest method of examination by means of the Roentgen rays.

The cartilages were peeled from their perichondrial envelope, and weighed. Then they were freed from water in a kiln, and burned; the fat was gauged by Soxhlet's apparatus; the dried cartilages were well ground, put into filter papers free from ashes, desiccated in the kiln, then weighed; after having the fat acted upon for twenty-four hours, they were again dried and weighed, and lastly burned. The same results were obtained in control experiments made with thyroid cartilages in which the fat was abstracted, one-half without, and one-half after pulverization. The cartilages examined were taken from tubercular and non-tubercular men, women and children. Some of the author's deductions are here given, while it would lead too far to repeat all of his figures and conclusions.

The average weight of the whole cartilaginous framework is,

In man:

Non-tubercular, 13,221	}	12,859.
tubercular, 12,497		

In women:

Non-tubercular, 8,011	}	7,821.
tubercular, 5,725		

That is, the difference between male and female 165.100, or 100.61.

In tuberculosis, the weight of the larynx seems diminished. The time of completed growth could not be decided upon. In man the thyroid cartilage appears larger than

in woman; the cricoid cartilage and epiglottis, however, smaller.

The relations of the different cartilages are about:

Thyroid cartilage, one-half of the weight of all cartilages.

Cricoid cartilages one-third.

Epiglottis, one-tenth.

Both arytenoids, one-twentieth.

The various cartilages contain the following percentage of dried substance, including fat:

Male.	Thyroid.	Cricoid.	Arytenoid.	Epiglottis	First tracheal cartilage.
Non-tubercular.	39.4 39.2		28.2 29.8		
	39.3	29.4	29.0	25.8	30.2
Tubercular.	32.6 31.4		23.7 23.2		
	31.9	30.5	23.5	24.9	21.5
Female:					
Non-tubercular.	38.8 38.1		35.9 33.5		
	38.4	37.0	34.7	27.4	33.2
Tubercular.	32.2 31.1		24.7 24.3		
		25.8	24.5	24.5	39.1

The author cannot corroborate the statement frequently made, that chronic tuberculosis favors ossification in the larynx. In further experimenting, it will be necessary to distinguish if the larynx of a tuberculous patient has become affected specifically by the disease, or if it has been only involved in the general dyscrasia. Long continued and hard coughing, namely, or straining the voice, may prove of influence in ossification independently of the condition of the blood and of the infection. It would seem that, in a declining constitution, there would not be any tendency to the formation of new blood-vessels where there is no direct irritation. But according to Chievitz, laryngeal ossification is preceded by the proliferation of blood vessels in the cartilage. Chievitz also ascribes to all diseases a favoring influence on ossification; the author, however, found increase of ash residue in chronic stomach diseases (three cases) and in chronic Bright's disease (one case.) Calcification or ossification may set in much earlier than is generally claimed. Chievitz assumes as the earliest time, the twentieth year in men, and the twenty-second in women. The author noted increased lime content, even distinct calcareous deposits, in healthy girls of 17 and 18 years, who died from accidents.

Ossification is thought to be physiological by the author;

it begins in regions corresponding to the attachment of a ligament or muscle. Being dependent on traction, the difference in the spread of ossification in the male and female, especially in the thyroid cartilage, is due to the difference in the action of the muscles. A proof for his explanation is seen by the author in the observations made both by him and Chievitz, that two regions of the thyroid cartilage remain free to a remarkable degree; the most anterior lower part of the pyriform sinus and that part of the thyroid cartilage corresponding to the sinus Morgagni. And in neither is there an insertion of a muscle or of a ligament.

Morgenthau.

Indication and Contra-Indications for Surgical Treatment of Tuberculosis of the Larynx and the Results One May Expect.

108. BOTEY, RICARDO, Barcelona. (*Archives Intern. de Laryng. d' Otol, et de Rhinol.*, September and October, 1897.)

1. In acute and subacute forms of tuberculosis of the larynx the surgical treatment is contra-indicated.

2. The same must be said of chronic infiltro-ulcerative tuberculosis of the whole or greater part of the organ.

3. In 20 per cent. of the remaining cases the surgical treatment is indicated, if the condition of the patient allows it, that is in lupus of the larynx sclero-vegetant and polypoid tuberculosis, infiltrations of one side or at the entrance of the larynx, infiltro-ulcerations of half or two-thirds of the organ.

4. The result depends upon careful selection of the cases. The author obtained almost always lasting improvements or cures.

5. Scarifications and electrolysis are useless. Galvano-cautery may help in lupus of the entrance of the larynx.

Holinger.

Report of the Progress Made in the Treatment of Laryngeal Tuberculosis Since the Last International Congress.

109. GLEITSMAN, J. W.; (*Journal of Laryngology*, p. 655, 1897.) The writer calls attention to Semon's remark that laryngeal tuberculosis is merely a local manifestation of a general infectious process and that we can not promise to cure the latter even when successful in arresting for a

ime the laryngeal complication. He has observed good results from creosote carbonate, guaiacol carbonate and benzosal especially at the beginning of the disease, but he has not secured any good results from anti-phthisin and anti-tubercle serum though Von Ruck in the former instance and Loeb in the latter report some favorable results. Local treatment comprises atomization, inhalation, insufflation injections and pigments.

Particular mention is made of Rosenberg's injections of menthol in olive oil, Botey's tracheal injections of creosote and guaiacol, Barton's intra-tracheal injections of benzoin, larophen and menthol. No topical application enjoys the confidence of laryngologists as much as lactic acid introduced by Krause in 1885. Good results are recorded from the use of salphoric acid of phenal suggested by Rualt. Simanowsky and Spengler recommend parachlorophenol in solutions of 5 to 20 per cent. in glycerine, while Murray reports good results from the use of Enzymol.

The surgical procedures are the following: (1), incision; (2), curettement; (3), submucous injections; (4), electrolysis; (5), galvano-cautery; (6), laryngotomy; (7), laryngectomy; (8), tracheotomy; (9), intubation. Curettement has made many converts and in spite of the delay of its general recognition, it has taken a firm foot hold. Curettement is indicated:

1. In cases of primary tuberculous affections without pulmonary complications.

2. In cases with circumscribed ulcerations and infiltrations of the larynx.

3. In cases with dense hard infiltrations of the arytenoid region of the posterior wall, also of the ventricular bands and tuberculous tumors of the epiglottis.

4. In the incipient stage of pulmonary diseases with but little fever and no hectic symptoms.

5. In advanced pulmonary disease, with distressing dysphagia resulting from infiltration of the arytenoids as the quickest means to give relief.

The contra-indications are:

1. Advanced pulmonary disease and hectic.

2. Disseminated tuberculosis of the larynx.

3. Extensive infiltrations, producing severe stenosis, when tracheotomy is indicated or laryngotomy can be taken into consideration.

The writer agrees with Heryng as to the inadvisability of operating in timid distrustful patients lacking the necessary nerve power as to submucous injections of lactic acid has given satisfactory results where objection was made to curettement or where it was inappropriate.

Chappell has reported good results from submucous injections of creosote dissolved in castor oil and Scheppegrell from cupric electrolysis. The latter who treated seven patients by this method found great improvement in four cases.

Crepon has collected seventeen cases of laryngotomy for laryngeal tuberculosis, to which are to be added two by Lahoffand and two by Pieniazek.

The writer closes as follows:

"If in conclusion, we allow all that has been said to pass in review before our mind, we are compelled to acknowledge that, during the last few years, not only satisfactory progress in the treatment of laryngeal tuberculosis has been made, but also that in many directions diligent efforts are being made to overcome our deficiencies and to improve our methods. But let us at the same time keep in mind the well-meant words of Kuttner, viz., that laryngology can very well recognize laryngeal tuberculosis in its initial stage, but that we seldom see a patient at the commencement of the disease. When the necessity of an early interference will be fully accepted, when the better results obtained at this stage will be more generally recognized then also the laryngologist will find his task easier and earn, with greater satisfaction to himself, the well-deserved rewards for his labors.

Loeb.

Treatment of Tuberculosis with Cinnamic Acid.

110. HEUSSER, TH., Davos. (*Therapeut. Monatsh.*, 1897, 9; *Wien. Klin. Woch.*, 1897, 1146.) The remedies against tuberculosis may be divided into the following classes: 1. Climatic and hygienic dietetic treatment; this is, however, more of an adjuvant to other methods, and, moreover, within the reach of but a small number of

pulmonary patients. 2. Internal medication; creosote alone has survived of the numerous drugs recommended. 3. Killing the tubercle bacillus; a goal hitherto not reached. 4. Finally, the plan advocated by Landerer, artificially to produce an aseptic inflammation around the tubercular focus and thus, in its stead, a firm scar. He recommends for this object, the injection of Landerer's fluid.

R_x Acidi cinnamylici - 5.0
 Olei amygdal. dulc. 10.0
 Vitellum ovi, No. I.
 Sol. sodii chloridi (0.7 %).
 q. s. ut fiat emulsio.

Before using, the fluid must be rendered slightly alkaline by the addition of a 25 per cent. solution of potassic hydrate. The injections should be made into the gluteal muscles. The author claims that the remedy, while not a specific against tuberculosis, influences the disease to a great extent. With some care, the injections are perfectly harmless. The histories of 22 patients treated since 1894, are given in detail. In one very sick patient, the fever subsided entirely after five weeks treatment, for the whole summer. It reappeared in autumn with the advent of new catarrhal symptoms, but vanished shortly after the injections were again begun. In another patient who was afflicted with severe phthisis, and who succumbed late to insufficiency of the right ventricle, the post-mortem examination showed nearly complete connective tissue cicatrization of the tubercular infiltration, and, further, considerable connective-tissue infiltration in a large cavity which had been diagnosed before, of such firmness and denseness as the author had never before seen. Of the 22 cases there were:

Cures in six instances	- - -	27.25 per cent.
Improvement in twelve instances,		54.54 per cent.
Death in one instance	- - -	4.54 per cent.
No success in three instances	-	13.63 per cent.

The value of these rather favorable results is enhanced when the forms of disease of the various group are taken into consideration. Landerer makes the following divisions:

1. Chronic tuberculosis with non-demonstrable cavities, although with many bacilli and moderate rise of temperature in the evening.

2. Cases of cavities without great rise of temperature.

3. Large cavities with high continuous fever.

4. Acute phthisis; so-called galloping consumption. To these the author would add,

5. Initial tuberculosis, where but slight areas of dullness are to be found by physical examination, but few bacilli and no elastic fibres, and where the general condition is but little affected. Of these two groups, two must be eliminated at once, *i. e.*, initial tuberculosis and acute phthisis. Landerer himself insists upon the hopelessness of applying his treatment in such cases, and none of the author's patients who were but slightly affected, could be induced to submit to injections of any kind, a result of the aversion among patients dating from the time of the tuberculin treatment,

All cases of the author belong to the group I and II; of the cured, 3 to group I, and 3 to group II; of the improved, 3 to group I, and 9 to group II. Of those improved, the result was permanent in 7; in 3, further reports are missing; in 2, death occurred after one-half to one year. Of those cured, 2 have remained so since two years, 3 since one, and 1 since five months, without any disturbance whatsoever.

Morgenthau.

Edema of the Larynx in Secondary Syphilis.

111. LACROIX. (*Arch. internat. de Laryngol., d' Otol. et de Rhinol.*, November and December, 1897.) A young married woman of 23, suffers from edema of the larynx, especially of the plicaaary-epiglottica. This latter is pale and one cm. in thickness. On the tonsils and posterior wall of the larynx are diphtheria-like membranes, but no diphtheria bacilli can be found. None of the usual remedies relieved the dyspnea and almost total inability to swallow. Afterward typical symptoms of secondary syphilis set in. The first doses of mercury improved the condition, and the membranes disappeared. No ulcers or erosions could at any time be seen.

Holinger.

Contribution to the Treatment of Tuberculosis of the Larynx.

112. LE MARC, HADOUR. (*Rev. hebdomadaire de Laryngologie, d'Otol. et de Rhinologie*, November 6, 1897.) The author occupies three and a half pages in giving directions how to anesthetize the larynx with 10 per cent. solution of cocain. For the operation he rejects Heryng's and Krause's curettes, and prefers M. Schmidt's forceps. For after-treatment, he recommends concentrated lactic acid, with cocain anesthesia. For treatment of the epiglottitis, he prefers Dr. Furet's forceps for the lingual tonsil. Four histories prove these statements. *Holinger.*

Tuning Fork—Vibrations.

113. MALJUTIN, E. N., Moscow. (*Fraenkel's Arch. f. Lar.*, VI., 2, 193.) When holding a sounding tuning fork in one's hand, the vibrations are transmitted not only to the fingers, but can be felt, on palpation, in the muscles of the arm and even of the shoulder. A priori, it may be concluded that a certain note can be produced with greater ease and clearness if it is sounded by a corresponding tuning fork held in the other hand; the vibrations of the cord will coincide with those of the fork. The author, who has a poor voice of limited range, coaxed his voice into unwonted heights by placing vibrating forks on his head. After some practice he was able, without the aid of forks, to sing all notes of the baritone register. Others also noticed great improvement in their voices. The author tried this method in one patient who had lost her voice completely for two and one-half years. She appeared to be a perfectly healthy young woman. In attempting to phonate, the vocal cords remain far from the middle line, while the arytenoids and ventricular bands approach each other somewhat. She cannot phonate, and speaks with her mouth only, without using the vocal cords. She had been treated in vain by all known means, even by hypnosis. October 19, the author placed a vibrating tuning fork on her thyroid cartilage and had her sing the note to the letter A. The sitting lasted twenty minutes, during which time the tuning forks embracing two octaves, E to E, were used. For four days this was repeated daily; she continued to produce the sounds in a whisper, which became more distinct day by day. On

October 29, the girl was able to read aloud, and has not lost her voice since that time. The changes in the larynx were observed daily by the mirror. The right vocal cord began gradually to move in the first days. After the fifth sitting, the left cord began to change its position. At present, the cords meet well. She cannot lower or raise her voice very much. Lately, by the aid of a higher fork, the pitch of the voice was raised. As the girl is not musical, that is done with some difficulty. The result in this case of hysterical paresis is ascribed to the mechanical action of the fork on the vocal cord, although the author admits the possibility of psychical influence and of an immediate effect of vibrations on the cerebral centers.

Morgenthau.

Pachydermia Laryngis; Report of Two Cases.

114. MARVIN, A. H., (*Cleveland Medical Gazette*, March, 1897.) In the first case, a newsboy of 14 years, the vocal cords were greyish white in color and greatly thickened in their posterior two-thirds, where, on each side, there was a white irregular swelling. In the inter-arytenoid fold was a growth the size of a pea, white, sessile and hard to the touch. The patient breathed with rough, noisy respiration and had frequent attacks of dyspnea. The inter-arytenoid growth was removed by means of a Krause cutting curette. On section, it presented the characteristic features of pachydermia laryngis.

The second was a similar case, the patient, however, disappearing before the treatment was completed.

Scheppegrell.

Three Interesting Cases of Foreign Bodies in the Air Passages.

115. MEYJES, H. P., (*Journal of Laryngology, Otology and Rhinology*, December, 1897.)

1. While eating the patient had put a needle into her mouth, which, by the motion she made when swallowing, entered and fixed itself in the larynx. The needle was observed occupying an exactly sagittal position, between the anterior commissure and the arytenoid cartilages. By means of a strongly curved long forceps with oblique action, the *corpus alienum* was extracted *in toto*.

2. A man, aged 35, got a fishbone in his throat which

could not be discovered. A week later an abscess almost as large as a hen's egg formed almost over the opening of the larynx. This was split up and down over the whole length (4 cm). This was followed by recovery.

3. A lady, aged 45, while eating chicken soup, got a bone in her throat. After three days of fever, difficulty of swallowing, pain in the right upper arm, she consulted the writer who removed the little piece of chicken bone (2.5 cm) which had fastened itself in the tissue near the right lateral glosso-epiglottic ligament. *Loeb.*

Unilateral Laryngoplegia From a Traumatic Lesion of the Spinal Cord.

116. MOLINIE, (*Rev. hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, Oct. 2, 1897). A case of Foubin is first reported. A man fell on a fence post, a point of which entered the soft parts in front of the mastoid process. The symptoms were change of the voice and difficulty in swallowing. The author's case is still more problematic. A man in attempted suicide, cut his throat. He recovered and afterwards suffered from one-sided paralysis of the soft plate and larynx. *Holinger.*

The Stone of a Prune in the Left Bronchus Thrown Out Without Tracheotomy After Intra-Tracheal Injection of Cold Water.

117. PEYRISSAC, (*Rev. hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, January 1, 1898). A farmer boy, of 18, had, like many of his kind, the bad habit of taking in his mouth a dried prune before going to sleep. On waking up he aspirated the stone into the trachea. Dyspnea and pain in the chest set in, he tried to call for help and could not do it. Toward evening a physician was called in, who heard the stone rattle in the bronchus, but could not get it out. For twelve days during which time the patient got worse, he refused to call for help from the city. When he finally came into the hands of the author he was breathing heavily and his voice was hoarse. The doctor induced the patient to inhale deeply and slowly, and exhale quickly. Then he injected through the mouth first 1 cc., afterward 4 cc. of cold water into the trachea which produced heavy coughing and brought up the stone. The author then mentions that most foreign bodies are found

in the left bronchus, its chance compared with the right is as 5 to 2. He describes several cases where foreign bodies stayed in the trachea for a long time, several months to several years. The idea of injecting cold water into the trachea for the above indication, the author claims is original with him.

Holinger.

New Researches About the Functions of the Larynx in Forming the Loud Consonants.

118. ROSAPPEL, (*Arch. internat. de Laryng., d'Otol. de Rhinol.*, September and October, 1897.) In a former paper the author from the vibration of the larynx, has proved that the loud consonants are similar to the vowels and less to the mute consonants. Against this was the objection that this same fact occurs in whisper. The author therefore made new experiments which led to the following conclusions:

1. In loud speech the larynx does not only vibrate in producing the loud consonants (consonnes sonores), but vibrates differently at different heights of the sound scale, as with the vowels. The larynx keeps the same position during the formation of the loud consonants as during that of the vowels. It changes for the low consonants.

2. In whispering instead of vibrations of the larynx there is another noise from the larynx, but as in loud speech this noise of the loud consonants is more like that of the vowels than that of the low consonants.

3. There is finally a third, exceptional type of pronunciation, in which the glottis always keeps the same position, and every difference disappears. The author calls this respiratory voice.

Holinger.

On the Radical Operation for Malignant Neoplasms of the Larynx with Special Reference to Thyrectomy.

119. SEMON, FELIX SIR., London, (*Arch. f. Lar.* VI, 3. Ther. Monatsh.) (This most exhaustive review of the present status of the question cannot be fairly treated in a necessarily brief abstract. We must refer to the original which must surely appear in full in some English journal.)

The unfavorable results obtained by older surgeons in these affections have become markedly better with greater progress in early diagnosis. Sir Semon considers as important early symptoms of laryngeal cancer early motor

disturbances in the larynx, site of the tumor on the vocal cords, congestion in the vicinity. Developments in diagnosis were soon followed by improvements in technique. Among these is cocainizing the real field of operation twice with 20 per cent. solution after splitting the larynx, to stop the coughing and parenchymatous bleeding, which obstructs the view. Improvements due to Butlin are removing the tampon-canula immediately after the operation without introduction of any canula later on, dispensing with the strips of iodoform gauze in after-treatment, and uniting at once the plates of the thyroid cartilage and the lower part of the external wound. After describing accurately the technique of thyrectomy and of partial extirpation of the larynx, the author's results are reported: Of thirteen cases, three ended fatally; there was recovery in nine without recurrence of the disease during a surveillance extending from 1 to 6 3/4 years; the result in 1 was uncertain. The author thinks, of the the other operative measures for the removal of malignant laryngeal neoplasms, the intra-laryngeal method and sub-thyroid pharyngotomy indicated in but rare cases. Complete extirpation of the larynx should be performed, 1, in those cases of intrinsic laryngeal cancer in which the diagnosis has been made too late. 2, in extrinsic laryngeal cancer springing from the posterior aspect of the cricoid cartilage. The life of those operated upon is sad, indeed, but if the disease is recognized *early* and operated upon by external methods, the prognosis is just as good, if not better, than in malignant neoplasms in any other region of the body.

Morgenthau.

Report of Forty Cases of Intubation.

120, STEVENS, CHAS. B., Worcester. (*Boston Med. and Surg. Journal*, September 16, 1897.) The following table exhibits the record of intubation in diphtheria, staphylococci, streptococci and measles:

In regard to the value of intubation, probably the majority of cases of laryngeal diphtheria recover without operation. The author has had fifteen cases of laryngeal diphtheria during the past year, which recovered without

operation. In seven of these the dyspnea was quite marked, but as long as they were able to sleep and did

Date.	Name.	Age.	Tube worn.	Intubated.	Anti-tox. in.	Termination.
Measles.						
Nov. 1896.	F. G.	2 years.	12 days.	3 times.	None.	Recovery.
Feb. 1897.	G. A.	1½ "	23½ "	3 "	"	"
Dec. 1896.	I. B.	6½ "	11 "	2 "	"	"
Measles and Diphtheria.						
Feb. 1897.	J. M.	2 years.	2 hours.	Once.	None.	Death.
Staphylococci.						
Jan. 1897.	C. M.	2 years.	11 days.	3 times.	Yes.	Recovery.
Streptococci.						
Jan. 1896.	A. B.	1½ years.	14 hours.	Once.	Yes.	Death.
Jan. 1897.	M. S.	5½ "	17 "	Twice.	"	"
Jan. 1897.	J. G.	1½ "	2½ days.	Once.	"	Recovery.
Dec. 1896.	C. C.	4 "	4 "	"	"	"
Jan. 1897.	G. P.	4 "	2½ "	"	"	"
Scarlet Fever and Streptococci.						
Dec. 1896.	S. L.	3½ years.	2 days.	Once.	Yes.	Death.

not become exhausted, they were not disturbed. On the other hand, in six other cases in which delay was advised, operation became necessary later, and all recovered. Operation is never useless if stenosis of the larynx is present.

Scheppegrell.

Congenital Laryngeal Obstruction.

121. SUTHERLAND AND LACK, London. (*The Lancet*, September 11, 1897.) This affection is described as a form of persistent laryngeal obstruction commencing at or soon after birth, and accompanied by a peculiar stridor. It has been described under various names, such as stridor, laryngeal spasms, etc.

Dr. Thomson states that inspiration begins with a croaking noise, and ends in a high-pitch note; expiration is accompanied by a short croak, and the stridor is loud, but at times noiseless. There are many varieties of this form. Cyanosis may be entirely absent. In the cases examined, there was no enlargement of the faucial or pharyngeal tonsils. The larynx showed the following characteristic appearance:

The epiglottis was shortly folded on itself, the two lateral folds being in close apposition, and in some cases in contact. The aryteno-epiglottic folds were approximate

and thus the upper aperture of the larynx reduced to a long slit. The thin folds bounding this aperture seemed quite flaccid and flapped to and fro on respiration. This inspiratory column of air striking down on these folds drove them together, and on expiration, they again separated. In some cases, the "purring" ones, the coarse vibrations of these folds could be distinctly seen. In only a few of the cases could a view of the vocal cords be obtained. They appeared quite wide and normal, as the symptoms would have led one to expect.

This condition usually persists for eight or nine months, and then gradually diminishes. Treatment should be on general principles; cod liver oil and malt, careful diet, and attention to general hygiene, represent the chief measures to be employed. The possibility of tracheotomy should not be overlooked.

Scheppegrell.

Some Critical and Desultory Remarks on Recent Laryngologic and Rhinologic Literature.

122. WRIGHT, J., Brooklyn. (*New York Medical Journal*, July 3, 1897.) An interesting review on the recent literature of this subject. The author criticises adversely the method of Vedova and Belfanti of using diphtheritic serum in cases of ozena.

In reviewing an article of Aronsohn on the question of primary tuberculosis of the larynx, he states that there are few who deny the possibility of its occurrence. He also refers to Massei's skepticism as to the efficacy of local surgical treatment in laryngeal tuberculosis. In criticising an article by Paul Manasse (*Virchow's Archiv* Bd CXIVII., Hft. 1), he calls attention to a case in his own practice, in which there was a diagnosis of malignant disease of the tongue, and a piece excised for microscopic examination which contained a large number of giant cells. The microscopic examination was tuberculosis. The clinical history, however, was practically that of syphilis, and the consequent treatment proved this to be the case.

Scheppegrell.

Effects of Drugs on the Tracheal Membrane.

123. X. (*Medical Times and Hospital Gazette*, June, 1897.) Alkalies and potassium iodide increase secretion.

Emetine markedly increases secretion. Saponin in small doses does not increase secretion; in large doses, it diminishes it. Cold, when applied to abdomen, increases secretion, and heat, when applied to abdomen, diminishes it.

Scheppegrell.

Emergency Tracheotomy.

124. X. (*Medical Record*, September 15, 1897.) Waste no time in giving an anesthetic. In diphtheria, there is already a blunting of the sensibilities. In cyanosis and coldness of the skin, the sensitiveness to pain is greatly diminished. In burns of the larynx and pharynx, be ready to operate at the first evidence of sudden grave dyspnea.

Scheppegrell.

V.—DIPHTHERIA.

Antitoxin in Membranous Croup.

125. BARNUM, R. E. L., Richland, Ga. (*Atlanta Medical and Surgical Journal*, October, 1897.) A negro girl, 3 years of age, suffered from a severe attack of "membranous croup." As the usual remedies were without avail, 1,000 units of antitoxin serum were injected and repeated several times. The dyspnea was so great that a fatal issue was expected. Improvement resulted, which was followed by recovery of the patient. The author believes that the general character of the disease was sufficient to distinguish it from diphtheria.

[The symptoms detailed by the author are not sufficient to distinguish this case from diphtheria, and the favorable result of the antitoxin, which is specific and acts only in diphtheritic cases, would corroborate a diagnosis of true diphtheria. The importance of intubation in marked dyspnea appears to have been overlooked in this case.—*Scheppegrell.*]

Scheppegrell.

The Antiseptic Versus the Antitoxin Treatment in Diphtheria.

126. BRAYMER, O. W. (*Jour. Amer. Med. Asso'n*, November 27, 1897.) The injection of antitoxin in those suffering from the slightest sore throat is not without danger. Diphtheria is primarily a local disease; why not,

therefore, treat it with local antiseptics? Antitoxin is supposed to counteract the effect of the absorbed toxin of this disease. Is it not preferable to destroy the bacillus before it has effected the work which permits of general absorption? Local antiseptic treatment, properly applied by a skilled hand, in addition to internal supporting measures, is as effective a treatment for this disease as can be found.

Scheppegrell.

Diphtheria Treated with Serum.

127. CLUBBE, CHARLES P. (*British Medical Journal*, October 23, 1897.) A reliable antitoxin must be used. It must be given in sufficient quantity, and should be administered early in the disease. Following these conditions, we may confidently expect favorable results. It lessens the mortality, however, when administered at almost any period of the disease.

In about 20 per cent. of laryngeal cases, even where there was dyspnea, it obviated the necessity for tracheotomy, the membrane disappearing from the throat on or about the third day. No ill effects were experienced in any of these cases, even after the injection of very large quantities (6,000 units being occasionally used).

Scheppegrell.

Successful Treatment of Diphtheria as Compared with Antitoxin.

128. COUGHLIN, J. H. (*Journal American Medical Association*, November 27, 1897.) The author has used antitoxin in only one case, and this was followed by severe vomiting, which continued for twelve hours in spite of treatment. He has had excellent results from local and constitutional treatment.

Scheppegrell.

Recurrent Diphtheria.

129. DRAKE, E. L. (*Jour. Amer. Med. Assoc'n*, November 20, 1897.) The case is reported as proving that the protective value of antitoxin is only of short duration, and there is danger in placing patients convalescent from diphtheria in close contact with new cases of this disease.

The patient, a girl of 6 years, suffered from laryngeal diphtheria, which necessitated intubation. The usual dose of antitoxin was administered. Three days later the child

developed a well marked attack of scarlatina. After three weeks' illness the child was sent home, and twenty days afterward again developed a well marked case of diphtheria. On the seventeenth day of her second attack she was again convalescent, but a week later she developed a third distinct type of diphtheria. A week afterward she recovered from this and was discharged. *Scheppegrell.*

The Treatment of Laryngeal Diphtheria by Antitoxin and Intubation.

130. ELTERICH, T. J. (*Pennsylvania Medical Journal*, September, 1897.) A clinical report of sixteen cases of laryngeal diphtheria, in ten of which antitoxin was used, and thirteen cases intubated. Twelve cases recovered, and of the fatal cases, in one there was cardiac paralysis and bronchial pneumonia (not intubated), in two pneumonia, and in one sepsis. *Scheppegrell.*

Favorable Results in Obstruction of the Trachea by Diphtherial Membrane From the Introduction of Creosoted Oil Through the Tracheotomy Tube.

131. EWART, E., AND HUBERT, W. A. (*British Medical Journal*, November 27, 1897.) An interesting history of the recovery of a patient in a desperate condition by this procedure. *Scheppegrell.*

On the Conveyance of Diphtheritic Infection by Apparently Healthy Individuals.

132. FOULERTON AND WILLIAMS. (*The Lancet*, October 23, 1897.) The history of a case is given, in which the conveyance of diphtheritic infection, which resulted in a serious outbreak, was due to an apparently healthy individual. As a result of their experience, they advised that, after the schools have been closed temporarily because of an outbreak of diphtheria, no scholar should be readmitted unless a bacteriologic examination of the throat has first been made, whether there be a previous history of diphtheria or not. *Scheppegrell.*

The Therapeutics of Diphtheria, with Special Reference to Antitoxin.

133. GRAY, W. W. (*Journal American Medical Association*, November 27, 1897.) Without depreciating the effects of local and constitutional treatment, the author is

a strong advocate of the benefits of the antitoxin treatment.
Scheppegrell.

Excision of the Tonsils for Hypertrophy with Recurring Tonsillitis.

134. LARNED, E. R. (*Journal American Medical Association*, December 18, 1897.) The author describes a modification of Ingal's or Bosworth's cold wire snare, with a description of its technique. The instrument has comparatively few parts, and may be thoroughly sterilized by boiling.
Scheppegrell.

Antitoxin and the Treatment of Diphtheria.

135. MCCOLLUM. (*Journal Boston Society of Medical Science*, January, 1897.) Antitoxin is a germicidal agent of very great value in the treatment of diphtheria. The healing serum does not cause albuminuria. Its use does not predispose to paralysis. In laryngeal cases of diphtheria, the benefit derived from its use is as great, if not greater, than in the non-laryngeal cases. The statement that has been made that antitoxin statistics, because based on mild attacks of the disease, are unreliable, is incorrect.
Scheppegrell.

The Treatment of Forty-Three Cases of Diphtheria With Antitoxin.

136. PAYNE, IRA, Linden, Ia. (*Medical News*, October 9, 1897.) Of forty-three cases treated, forty-two of which recovered, five were of well defined diphtheritic croup, which would probably have proved fatal under ordinary treatment. Most physicians use too small a dose for the initial injection. In malignant cases, 2,000 to 4,000 units may be given as the initial dose, and repeated every fifteen hours if the symptoms indicate it. In antitoxin properly prepared and rightly handled, we have as near a specific for the treatment of diphtheria as we have in quinine for malaria.
Scheppegrell.

Diphtheria.

137. RANKIN, E. C. (*Western Medical Review*, October 15, 1897.) Powders of calomel (1 gr. for each year of the child's age, every two hours with sugar of milk is given until copious dark green discharges are passed. Equal parts of sozo-iodolate of sodium and sulphur precipitate is

applied locally by means of a powder-blower every few hours. Good effects are claimed for this treatment.

Scheppegrell.

Diphtheria Antitoxin, With Report of Cases.

138. SLACK, HENRY R. (*Atlanta Medical and Surgical Journal*, November, 1897.) From his experience with antitoxin diphtheria, and from the published statistics, Dr. Slack unhesitatingly recommends its use, not only in the treatment, but also as a preventive of diphtheria. He advises that the injection (1,000 to 2,000 units), be made as early as possible on a clinical diagnosis, as the loss incurred in waiting on a bacteriologic examination may cause a life to be sacrificed.

Scheppegrell.

The Present Mortality Rate in Diphtheria.

139. SNIVELY, I. N., Philadelphia. (*Journal American Medical Association*, December 18, 1897.) The use of antitoxin in diphtheria has already astonished us by its remarkable results. The further increase in the rate of recovery will depend upon:

1. The production and use of only concentrated antitoxin.

2. The elimination from our market of all serums of variable, weak and uncertain quality, no serum of less than 200 units per cubic centimeter being accepted.

3. The general employment of approved serum, according to the best teaching of the profession.

4. By treating each case of the disease as speedily as possible, aiming to neutralize the absorbed toxins and arrest the disease.

5. By treating the constitution and the disease in the same way, namely, by meeting specific indications.

6. By guarding against fear and other undue exertions, psychic and psychical, on the part of the patient.

7. By endeavoring, as a physician, to maintain a reliable mental equipoise.

Scheppegrell.

Personal Observations and Experience With Diphtheria Antitoxin Serum.

140. SNIVELY, I. N., Philadelphia. (*Journal American Medical Association*, September 1897.) The author is enthusiastic in his faith regarding the value of antitoxin in diphtheria. In his first twenty cases he used other treat-

ment in connection with the serum, but now relies entirely upon this remedy.

Scheppegrell.

Antitoxin as a Prophylactic.

141. TWOMBLY, E. L. (*Boston Medical and Surgical Journal*, December 23, 1897.) Twenty-one children and a nurse, who had been exposed to diphtheritic infection, had complete immunity from this disease after a prophylactic injection. Attention is called to the small dose (one-third to one-half the regular dose), that seemed to give immunity to the children; also, to the greater susceptibility to diphtheritic infection after or during measles.

Scheppegrell.

The Prophylactic Utility of Diphtheria Antitoxin.

142. X. (*British Medical Journal; Medical Record*, November 6, 1897.) In an epidemic of diphtheria in the town of Baracella, the usual prophylactic measures, such as isolation, disinfection, closing of the schools, etc., failed to bring the outbreak to an end. Preventive inoculation on a large scale was then resorted to, four-fifths of the children of the poor between 1 to 12 years of age receiving the treatment. Hereupon new cases at once failed to appear among the inoculated children, although the disease continued to develop with the previous frequency among those not subjected to the prophylactic treatment.

Scheppegrell.

VI.—MISCELLANEOUS; THYROID GLAND, EOSOPHAGUS, ETC.

The Eanuchian Voice and Its Treatment.

143. ANDRE, BONNES, (*Rev. hebdomadaire de Laryngologie, et de Rhinologie*, November 13, 1897.) The author was himself affected with this annoying trouble. He gives an analysis and treatment of Prof. Garel, which proved very satisfactory in his and other cases. The family of the author was very musical, and at the time of the change of voice he used falsetto voice, in order to get certain high pitch. Later on he became hoarse and aphonic after brief conversation. There is no anatomical difference to be found in these larynxes. In pronouncing a vowel, however, the vocal cords of the normal leave an elliptic opening, while

in the eunuchian voice there is a V shaped opening. He gives a number of theories for this fact. He calls it a simple habit, which is proved by the quick and complete cure. In order to overcome this ridiculous and for the voice deleterious habit, he recommends first, to arouse in the patient the ardent wish to get cured. Then under control of the physician the patient should pronounce in a deep voice vowels, then syllables and finally words. At last he has to read, but always under control. His patients or friends should notify him the moment he uses falsetto voice. The vocal cords get pale and the voice becomes more steady in the new position. While before acute laryngitis was very frequent. Afterward the voice will meet all requirements. Nineteen observations confirm the author's statements.

Holinger.

Adminstration of an Anaesthetic Through a Tracheal Wound.

144. ANNENDALE, THOS. Ediburg, (*The Lancet*,, November 6, 1897.) The author describes a tracheotomy tube, over the outer opening of which a cap is fitted, an indian-rubber tube being connected with the latter by means of which the anaesthetic is administered. An ordinary glass tumbler is used, a small piece of absorbent wool being placed at the bottom of the glass, upon which the chloroform or ether is sprinkled.

Scheppegrell.

A Contribution to the Treatment of Whooping-Cough.

145. BIGG, ARTHUR H., Detroit, Mich., (*The Physician and Surgeon*, August, 1897.) The association of excessive mucous discharge with the spasmodic stage of pertussis, taken in connection with the prompt relief of the cough that follows its expulsion, suggests causal relation to the intense reflex excitation which is characteristic of the paroxysms. Its manner of offending is probably by its irritating contact with the nerve endings in the mucosa. Hence the temporary efficacy of the emetics, ipecac and alum, in causing its forcible ejection from the body.

Biniodide of mercury, by its specific, liquefying action upon the glandular secretions, exerts an antidotal influence upon the disease, and thus directly lessens reflex excitability. Its potent germicidal property also renders it fully equal to any possible indication in that direction.

The use of biniodide of mercury in small doses (1/200 gr. in saccharine triturate every two hours) is a wholesome stimulant for the emunctories, and its beneficent action upon the blood itself renders it a direct promotor of somatic nutrition, and the ease with which it can be administered makes it an ideal remedy in this disease.

Scheppegrell.

Hay Fever and Coryza.—Their Relations and Treatment.

146. BISHOP, S. S., (*Laryngoscope*, December, 1897.) Reference is made to the writer's well known work in showing the relation between uric acid and hay fever. Having found that lithia was of great service in the relief and absorption of coryza, the question naturally arose: What has uric acid to do with causing coryza? This is answered as follows:

Uric acid is readily solvent in the alkaline blood, and is largely eliminated by the secretion of the skin. Chilling the skin produces cold in the head, or coryza. The chilling arrests the secretion of the skin and checks the elimination of uric acid from this surface, besides diminishing the circulation of blood in the capillaries of the skin, and by thus disturbing the normal balance of circulation, it throws an excess of blood into the already weakened blood vessels of the predisposed organ—in this case, the nose. Moreover, in fever the blood becomes of an acid reaction, but cold renders it alkaline, in which state it readily takes up the excess of uric acid stored in the more alkaline tissues and becomes rich in this irritant of the vessels.

Hence the relation of hay fever to coryza becomes apparent. The initial stage of the latter is correlative to the former, and the remedies for one are successfully applicable to the other. Reduce the alkalinity of the blood, excite free secretion of the skin to eliminate the excess of uric acid, restore the balance of circulation and nature will do the rest. Remedies that quickly rid the blood of the excess of uric acid, like lithia, produce prompt results. The physiological action of the coryza tablets referred to is too apparently applicable to require further elucidation.

It hardly seems necessary to add that a vegetable diet, abstinence from meats, sweets, wines and beer, appropriate

exercise, and the removal of any peripheral causes or irritation are necessary factors in the treatment. *Loeb.*

Foreign Body in the Alimentary Canal.

147. BROWN, W. H., (*Medical Chronicle*, May, 1897.) A patient of 67 years swallowed a dental plate with four incisor teeth. There were no metal hooks, but at each end was a hard rubber fork which fitted the first molar. A potato diet was recommended and within 72 hours the plate was voided. Nearly twenty-one pounds of potatoes had been consumed, *Scheppegrell.*

A Construction to the Symptomatology of Hay Fever.

148. CAPP, WILLIAM M., Philadelphia, (*Medical News*, October 23, 1897.) After referring to the symptomatology of this affection in general, he calls attention to the influence of hay fever on the muscle of accommodation of the eye, observed in the case of the writer himself. *Scheppegrell.*

Report of a Case of Cyanosis from Elongated Uvula.

149. CARSTAIRS, J. L., Glasgow, (*British Medical Journal*, November, 20, 1897.) When the patient appeared to be passing under the anaesthetic, there was sudden stoppage of respiration with rapid development of cyanosis. An attempt to relieve this condition proved unsuccessful until a remarkable elongated uvula was held aside by means of an artery forceps. *Scheppegrell.*

Catarrhal Sore Throat in General Practice.

150. CARTER, G. N., (*Medical News*, August 28, 1897.) A general review of the symptomatology and treatment of this condition.

A Case of Vicarious Menstruation From the Lungs.

151. CHADBOURNE, T. L., (*Journ. Amer. Med. Ass'n.*, January 22, 1898.) The bleeding from the lungs has usually occurred at the time of the catamenia. The points of interest in the case reported are as follows: The patient had had periodic hemorrhage from the lungs for a long time, at least nine times within a period of fifteen months, without having up to the present date any demonstrable signs of lung disease.

In view of the fact that so many such cases are later seen to be tuberculous, the prognosis was guarded, the more so on

account of a number of enlarged glands in the neck. The fact that the patient has to all appearance recovered does not make it impossible that she may still have a healed tuberculous lesion in her lungs. *Scheppegrell.*

Exophthalmic Goitre.

152. COBB, G. H. (*New York Medical Journal*, July 3, 1897.) A careful review of the history, physiology, pathology, anatomy, complications, diagnosis and treatment of this disease. *Scheppegrell.*

Abnormal Respiration in Infants from Obstruction in the Upper Air Passages

153. CONCANON, JAS. J. (*Journ. Amer. Med. Ass'n.*, December 18, 1897.) In referring to the important subject of dyspnea in children under 3 years of age, the author emphasizes the following points: The importance of laryngology in pediatrics; the facility with which the larynx may be examined, even in infants; the necessity of ascertaining the condition of the upper air passages in children, and for the removal of obstructive adenoid growths; the many causes of nasal and laryngeal dyspnea in infants, amongst which drawing in of the nasal alae, sprue, inhaled irritants and foreign bodies are often overlooked; the frequency (?) of retro-pharyngeal abscesses, necessitating digital exploration of the pharynx; that the bacillus of Loeffler is often the cause of laryngeal stenosis in acute diseases, and demands prompt use of antitoxin; that these helpless little beings, who cannot, often will not, give a history, should receive the benefit of all modern methods in diagnosis, that they may enjoy normal respiration. *Scheppegrell.*

Holocain in Otology and Laryngology

154. COOSEMANS, E. (*Rev. hebdomadaire de Laryng., d' Otol. et de Rhinol.*, December 11, 1897.) Holocain is a chlorhydrate of diathoxyaethyldiphenylamidine, a near relative to phenacetine. The author gives all its physical, pharmaceutical and chemical properties. It is a local anesthetic, and a solution of 0.5 to 0.87 per cent. is usually sufficient, but 1 per cent. is better. One to two drops are used to produce anesthesia in the eye; after forty seconds, the instillation is repeated. There is no disagreeable

sensation connected with the use of this drug. The insensitiveness lasts from eight to ten minutes. It disappears slowly, and symptoms of intoxication were never observed. There is no influence on accommodation. In the ear, it may be used for little operations on the external and middle ear, and to make catheterization less disagreeable to the patient. The author opened furuncles of the external meatus, and made paracentesis of the membrane with anesthesia produced by holocain, without pain to the patient. If this solution of 1 per cent. instilled twice within three minutes does all the author promises, a great step forward is made in ear surgery. The disagreeable sensations in the pharynx after use of cocain are equally absent. It is also advocated in dentistry, because it is almost tasteless. The solutions keep and are antiseptic.

Holinger.

Streptococcic Infection and Marmorek's Serum.

155. COX, GEO. W., Chicago. (*Jour. Amer. Med. Ass'n.*, September 11, 1897.) In Marmorek's serum, we have a remedy of the greatest therapeutic value. So far as is known, it is only applicable to streptococcus infection, simple or mixed, hence, it naturally follows that an early bacteriologic examination should be made in order to settle the question of diagnosis and point the treatment. Its action upon the microbe is rapid and certain, if given in adequate doses.

Scheppegegrell.

Removal of a Sarcomatous Thyroid Gland Without Anesthesia.

156. DAVIS, G. G., Philadelphia. (*Medical and Surgical Reporter*, May 22, 1897.) An examination showed a tumor the size of an orange, round and tense, situated on the anterior portion of the neck. It moved somewhat on swallowing, but was evidently attached to the surrounding tissues, thus preventing free motion. There was difficulty in breathing and in swallowing.

With a view of relieving the breathing, it was decided to remove such portion of the growth as would liberate the imprisoned trachea. On beginning the administration of ether, however, the breathing became more labored, which continued to grow worse in spite of the cessation of the anesthesia. The dyspnea became so urgent, that incis-

ions were made rapidly, and the whole growth loosened from its attachment. This relieved the compressed trachea, and the patient began breathing again.

Three weeks afterward, a recurrent growth at the side of the drainage-tube opening, was removed under chloroform. A week later, the growth reappeared, and on the ninth day dyspnea again developed, the patient dying within a few minutes. A microscopic examination showed a spindle-celled sarcoma, with a comparatively small number of round cells.

In the discussion of this article before the Philadelphia Co. Medical Society, April 28, 1897, Dr. Price called attention to the danger of performing in the office, operations requiring anesthesia. The same point was emphasized by Dr. Woodbury. The latter stated that Dr. J. Solis-Cohen had called attention to liability of incarceration of the epiglottis in the the throat by the constrictor pharyngei muscles.

Dr. S. Solis-Cohen stated that Dr. J. Solis-Cohen lays great stress on the necessity of operating under these conditions without a general anesthetic, unless it be absolutely imperative. He quotes a case in which the trachea was opened for a malignant tumor of the thyroid, which was followed by a great gush of blood, this almost suffocating the patient. Had the patient not been conscious, he could not have been raised, and by efforts of coughing assisted in getting the blood out of the trachea.

In conclusion, Dr. Davis stated that he preferred operating on the air passages without the use of a general anesthetic, but in some cases it is but just to the patient to employ it.

Scheppegegrell.

The Operative Treatment of Occlusion of the Jaws.

157. EWING, E. J. (*Jour. of Amer. Med. Ass'n.*, September 18, 1897.) The author gives a careful analysis of the various operative measures in the treatment of jaw-closure, the article being fully illustrated. He gives the following conclusions:

1. Jaw-closure, due to the presence of cicatricial tissue in the buccal spaces can be most efficiently relieved by the formation of a canal lined by normal membrane, by means of a ligature passed behind the cicatricial mass, reunion of

the divided tissue and reformation of the nodular tissue not occurring after division, when this canal has been formed.

2. Synostosis of the temporo-maxillary articulation producing jaw-closure can be best relieved by the removal of both coronoid and condyloid processes with the upper portion of the ramus, thus affording ample space for a freely movable free joint. The operation should be performed through the mouth, thus avoiding disfiguring cicatrices.

Scheppegrell.

A New Research Into the Muscles of Respiration.

158. FICK, RUDOLPH. (*The Lancet*, November 20, 1897.) This article gives the results of a careful investigation of this subject. It was found that when the auxiliary muscles of respiration and the diaphragm were paralyzed by severing the nerves in the neck, and the action of the abdominal muscles eliminated by dividing them, the respiration continued in a normal hythmic manner.

These experiments, taken in connection with the geometrical deductions contained in the first part of this article, prove that normal quiet inspiration is the effect of the contraction of the external intercostal and inter-cartilaginous muscles, and expiration of the internal intercostal muscles.

Scheppegrell.

Antitoxin in the Treatment of Diseases of the Eye and Ear.

159. FRANKLIN, W., Chicago. (*Jour. Amer. Med. Ass'n*, January 29, 1898.) Antitoxin is the sodium salt of tetra-iodophenol-phthalein. It is a dark blue, amorphous powder, readily soluble in water and alcohol, odorless, non-toxic and non-irritant. It makes a purplish solution in water. In addition to its use in ophthalmology, the author has found it of value in otitis media purulenta. A 1 or 2 per cent. solution may be applied without causing pain to the patient.

Scheppegrell.

Guaiacol in Chronic Coughs.

160. GOLDHAMMER, ADOLPH, New York, October 23, 1897.) Guaiacol has decided value in cases of bronchitis, with or without asthma. It is of special benefit in chronic coughs of children, and it appears to have had good effects in pertussis. The author considers it an excellent prophylactic against tuberculosis.

In acute coughs, guaiacol does not act beneficially, and should not be employed. The dose is five drops three times daily, this being increased one drop daily, up to fifteen, three times daily. It should be administered in milk, or if this is objectionable, in capsules.

Scheppegrell.

The Feasibility of Controlling Pernicious Vomiting by Means of Intubation of the Larynx with a Specially Adapted Tube.

161. GREENE, C. L. (*British Medical Journal*, October 16, 1897.) In cases of pernicious vomiting which cannot be controlled by the usual methods, the author advises intubation by means of a modified tube, or, that failing, tracheotomy. He recommends the latter measure only as a *dernier ressort* where the pernicious and intractable character of the vomiting actually threatens the patient's life. The author states that he advises these measures only on theoretical considerations, as he has had no clinical proof of their efficacy.

Scheppegrell.

Clinical Cases.

162. INGALS, E. FLETCHER. (*The Clinical Review*, November, 1897.) The first case, a man of 39 years, had an irregular shaped ulcer on the dorsum of the tongue, which had caused irritation for seven weeks. Another ulcer was found on the arytenoid cartilage. A diagnosis of syphilis was made. Tuberculosis of the larynx almost always succeeds the pulmonary manifestation, and rarely develops in so short a period of time.

In the treatment of the second, goitre, thyroid extract was administered, this having given Dr. Ingals good results. Two-grain tablets of dessicated thyroid three times daily are given, gradually increasing the dose to three or four grains. No local treatment is made.

Another case was one of hoarseness and dyspnea, the diagnosis lying between paralysis of the vocal cords and ankylosis, the former, however, being accepted. An intubation tube was inserted and the patient placed upon iodides and large doses of strychnia.

Scheppegrell.

Nitrous Oxide Anesthesia

163. KEMP, G. F., Baltimore. (*British Med. Journal*, November 20, 1897.) Nitrous oxide is a specific anesthetic, not depending on asphyxia for its effects. Asphyxia can

be avoided by the admixture of air or oxygen with the nitrous oxide. A deep and smooth anesthesia can be obtained for a sufficient length of time to warrant its further trial in major surgery. This gas is many times safer than chloroform or ether, and the unpleasant after-effects of vomiting, etc., are practically never present, if the ordinary precautions are observed. *Scheppegrell.*

Anti-streptococcic Serum in the Mixed Infection of Tuberculosis.

164. KNOPF, S. K., New York. (*Jour. of Amer. Med. Ass'n.*, September 25, 1897.) As a result of his clinical and bacteriologic observations, Dr. Knopf states that the effects of anti-streptococcic serum are not always uniform. With patients whose temperature rose over 102° F. for several days, the results were negative. When, however, there was a temperature of only 101° F., or a trifle over, with streptococci in the sputum, an injection of 10 cubic cm. reduced the temperature from one to one and a half degrees, and a second injection of 10 cubic cm. brought it down to nearly normal. A third, fourth, fifth and sixth, of 5 cubic cm, each, given first every twenty-four hours, then at longer intervals, helped to maintain the normal or nearly normal temperature, and a general better feeling was experienced by the patient.

The earlier the injections are made the more satisfactory the results. It is advised for pulmonary tuberculosis, whenever there is a marked infection and when, after a short trial, absolute rest, fresh air, and the usual antipyretics have failed. *Scheppegrell.*

Liebmann's Method of Treating Stuttering.

165. LIEBMAN. (*Memorabilien*, Nov. 13, 1897; (*Journal Amer. Med. Ass'n.*, January 22, 1898.) One hundred severe cases cured in the brief space of four weeks are reported by the author. He has the patient repeat sentences after him, drawing the vowels, and pronouncing the consonants sharply, but distinctly, maintaining the conversational tone throughout without rhythm, and avoiding the singing tone altogether. When the patient finds himself thus speaking several sentences fluently at the first sitting, the psychic stimulus is immense. The method can be applied to quite small children. *Scheppegrell.*

Hay Fever.

166. McCASSY, J. H., Dayton, O., (*Cincinnati Lancet Clinic*, September 25, 1897.) Hay fever should be regarded as a constitutional disease with the nasal passages as the seat of local lesion. In all diseases of this kind, the treatment should be both constitutional and local. The author believes that if patients would attend strictly to hygiene of bathing and dieting, keep the blood in proper condition with the acid tonics or alkaline carbonates, and the nasal catarrh and hypertrophy removed by skillful cauterization, there would be little occasion for hay fever resorts. On account of the tendency of reinfiltration after cauterization, he advises that the patient have the nose cauterized annually.

[The extensive and repeated cauterization of the mucous membrane in hay fever patients is now usually condemned, and the cautery should be applied, if at all, in the most conservative manner. Not only is it frequently ineffective, but it endangers the integrity of an organ whose importance for the respiratory function is often underestimated.]

Scheppegrell.

Two Hundred Cases of Speech Defects at the Philadelphia Polyclinic Hospital.

167. MAKUEN, G. H., Philadelphia. (*Therapeutic Gazette*, September 15, 1897.) Stammering is a defect of speech confined largely to the male sex, only five per cent. of 140 cases being females. It usually develops during adolescence. Heredity is an important factor, and imitation, voluntary or involuntary, is a fruitful cause of this trouble.

Each case demands a treatment especially adapted to the condition found. It may be due to the cortical speech mechanism, vocal or oral mechanism, or to the nerve tracts which unite these mechanisms. Lesions of the nose and throat should be carefully sought for.

The treatment consists in a systematic course of training, which should be of such a nature as to thoroughly break up certain faulty mental and muscular processes and to substitute for them certain other natural and physiologic process which shall be governed entirely by the intelligent consciousness. The patient must be taught the exact sounds of the language, and the speech muscles must be trained

into right action by the frequent repetition of appropriate exercise.

Scheppegrell.

Cough and Its Treatment.

168. MAYS, THOS. J., (*Therapeutic Gazette*, June 15, 1897.) The author describes the various forms of coughs. Ear congh (due to excitation of the auricular branch of the pneumogastric nerve), laryngeal, bronchial, pleuritic, asthmatic, phthysical, aneurismal cough, and cough due to pressure on the vagus and to fatigue, the treatment of each of which is described.

The author very properly advises against the administration of opiates or expectorants, relying more upon the restorative plan, that is, elevating the functions of the body. The following formula for simple cough is advised:

R	Tinct. benzoin comp.	- - -	f5ss
	Fl. ext. euphorbia pilulif	-	f5ss
	Tinct capsicum	- - -	f5iii
	Syr. senega	- - - -	f5i
	Syr. hydriodic acid, q. s.	-	f5iv

M. S. One teaspoonful in water every three or four hours.

Scheppegrell.

A Case of Exophthalmic Goitre Treated With Thymus Gland.

169. NAMEACK, CHAS. E. (*New York Medical Journal*, July 3, 1897.) The author reports a case in which benefit was apparently derived from the administration of thymus gland.

Scheppegrell.

X-Ray Injuries.

170. SCOTT, N. S., (*American X-Ray Journal*, August, 1897.) After referring to the various forms of irritation that may result from exposure to the X-rays, the author advises that the exposure should be short, not exceeding one hour for a distance of ten inches from the terminal, and should not be repeated until a sufficient time has elapsed to show that no bad effects are liable to be produced. Generally speaking, the distance should be as great and the time as short as possible for each application.

Scheppegrell.

Harelip.

171. SEVEREANO, Bucharest. (Proceedings International Medical Congress at Moscow, August 19, 1897, *Medical*

Record, September 18, 1897.) The sides of the fissure are split into two portions, a mucous and a cutaneous one, each part being brought together by a separate set of sutures. The loss of substance necessitated by the freshening process in all the other harelip procedures is thus avoided, and, as the flaps to be joined together are thinner, a more close coaptation is secured which thus lessens the prominence of the resulting cicatrix *Scheppegrell*.

Blue Pyoktanin in the Treatment of Inoperable Malignant Growths.

172. SLACK, H. R., La Grange, Ga. (*Journ. Am. Med. Ass'n.*, June 26, 1897.) The author uses a large hypodermic syringe and injects one to two cc. of a two per cent. solution. The patient is given the pyoktanin pencil, one per cent. solution or two per cent. powder, as the case may require, to apply daily. He has seen no untoward effects from its use, and believes that pyoktanin is a palliative treatment for cancer, which should be given a fair trial.

Scheppegrell.

Oesophagotomy and Removal of Dental Plate With Upper Central Incisor Tooth.

173. SNYDER, A. A. (*N. Y. Med. Journ.* September, 18, 1897.) A young woman, of 22 years, had swallowed a broken dental plate which had become lodged in the esophagus. The foreign body was located by means of a flexible bullet probe. Esophagotomy was performed, and the plate with the tooth was successfully removed. The patient made a complete recovery.

Scheppegrell.

Quebracho in Asthma.

174. SOLIS-COHEN, J. (*Philadelphia Polyclinic*, October 2, 1897.) The author recommends the fluid extract of quebracho in the treatment of asthma, whether of the chronic or purely spasmodic variety, the dose being from 30 minims to a fluid dram repeated hourly or less frequently according to circumstances. When the stomach is irritable, the remedy should be given in a bland vehicle or some liquid preparation of pepsin. If relief is not experienced within 48 hours, it should be discontinued.

Scheppegrell.

The Treatment of Tuberculosis With Tuberculin.

175. SPENGLER (*Deutsche Med. Woch.*, No 36.) Dr. Spengler, as a result of his experience with this serum,

states that in case of mixed infection tuberculin is without any favorable action, and that while in cases of unmixed tuberculosis of the lungs, little is to be hoped for in severe cases, marked and permanent improvement may be anticipated in many cases of moderate severity, and almost certainly good results, even to complete cure, in mild cases.

Scheppegrell.

External Esophagotomy.

176. TAPPY, E. T., Detroit. (*Physician and Surgeon*, Aug. 1897.) In the first case described, the patient had swallowed a plate with three artificial teeth, which lodged in the esophagus. After an unsuccessful attempt to remove it by means of forceps, esophagotomy was then performed. In spite of drainage, the patient died of pyemia, this being probably due to the retention of pus in the deep wound beneath the sterno-cleido-mastoid muscle.

In the second case, the patient being a little girl, the skiagraph showed a round foreign body on a level with the third dorsal vertebra. An operation was deferred, in the hope that the foreign body would be passed through the natural channel. Finally, esophagotomy was performed, and the coin removed by means of the forceps. The patient made a successful recovery.

Scheppegrell.

Primary Sarcoma of the Thyroid Gland.

177. TIFFANY, L. M., AND LANIER, B. B. (*Annals of Surgery*, October, 1897.) The patient, an unmarried female of 33 years, had suffered from disturbance of breathing for more than a year. The past three months there were violent attacks of dyspnea. A diagnosis of thyroid tumor, possibly malignant, was made. The tumor was successfully removed, but the patient died ten days afterward, cyanosis gradually developing, this being followed by coma. A microscopic section proved it to be a spindle-celled sarcoma of the thyroid gland.

Scheppegrell.

Thiosinamine—A Further Study of Its Use in the Treatment of Keloid, "Inoperable Tumors," and Cicatricial Conditions, Including Deafness.

178. TOUSEY, SINCLAIR. (*New York Medical Journal*, November 6, 1897.) Thiosinamine is derived from oil of mustard seed. It is crystalline in character, and does not

keep well in aqueous solution. It was first experimented with in the treatment of tuberculosis, but without success. Its use is followed by the softening and relaxation of the deforming cicatrices left by lupus. The author, therefore, used it experimentally in keloid, and with benefit.

He recommends a hypodermic solution made by dissolving 10 parts of thiosinamine in 100 parts of a sterilized mixture of water and glycerin. This solution keeps well, and is non-irritating. Twelve to fourteen minims, as a full dose, are injected into the muscles, triceps or glutei, every three days. The author states that it is free from deleterious effects of any kind, but he, however, refers to a case in which thiosinamine was used for deforming cicatrices of the face and neck, which was followed by death from septicemia, in spite of the most strict antiseptic precautions.

He recommends it for that form of deafness in which the tympanic contents are incapacitated for vibratory transmission by bands of fibrous tissue, and he reports a case in which benefit appears to have been obtained from this treatment. *Scheppegrell.*

The Use of Iodoform in Suppurative Cervical Adenitis, Sinuses, Etc., With Report of Six Cases.

179. WALKER, D. E., New York. (*Medical News*, August 14, 1897.) For suppurative inflammation of the cervical glands, the author advises the iodoform treatment, which has been found successful in bubos, that is, incision into the abscess, evacuation of the contents, and afterward syringing out with a 1 to 4,000 bichloride solution, and then filling the cavity to slight distension with a 10 per cent. iodoform ointment. This is repeated every two or three days and usually results in a rapid cure. In six cases reported this method was successful, and no symptoms of iodoform poison occurred.

In the cases reported by Wieland (*Deutsch. Zeit. f. Chir.*, XLI., 4, 5), however, in which twenty-one cases of tubercular abscess were treated by this method, four developed symptoms of iodoform poison. *Scheddegrell.*

A Case of Acute Necrosis of the Alveolar Process of the Superior Maxilla in a Baby Two Days After Birth.

180. WOOD, F. C. (*British Medical Journal*, October 30, 1897.) When the child was examined two days after

birth, the alveolar process of the left superior maxilla was much swollen, which was followed by extensive sloughing. When the slough was removed, two pieces of bone were extracted. On the twelfth day an erysipelatous eruption appeared on the abdomen, which spread rapidly, the child dying on the fifteenth day, apparently from sapremia.

Scheppegrell.

Etiology of Catarrh of the Upper Air Passages.

181. X. (*Journal American Medical Association*, December 18, 1897.) The writer, in a Russian medical journal, after referring to the universality of catarrhal affections, states that it is largely due to the fact that the mucous membranes are not supplied with sufficient moisture to keep them in normal activity.

[That this theory is fallacious is evidenced by the fact that in New Orleans, where the atmosphere is usually surcharged with moisture, catarrhal diseases are almost as common as in other countries with a dry atmosphere.—*Scheppegrell.*]

Scheppegrell.

Formaldehyde Solution in the Treatment of Diseases of the Nose. Ear and Larynx.

182. YATCOUTA. (*Revue de Ther.*, April, 1897.) The use of this drug is recommended by Yatcoute. A 5 per cent. solution of formalin is placed in a glass carafe and the patient instructed to inhale the vapor which rises on shaking the vessel. He has had good results in acute laryngitis, in coryza, and in catarrh of the eustachian tube, the gas being applied in the latter condition by means of the eustachian catheter.

Scheppegrell.

Eucaïn as a Local Anesthetic in Surgery of the Throat, Nose and Ear.

183. YEARSLEY, M., AND HORNE, W. J. (*British Medical Journal*, November 27, 1897.) The authors have used eucaïn in the majority of operations in which cocain has been applied. Eucaïn is an efficient substitute in cases in which there is an idiosyncrasy for cocain, which precludes an operation. In his experience, eucaïn has given rise to no symptoms which are suggestive of the toxic effects of this drug.

Scheppegrell.

Eucaïn Hydrochlorate in Rhino-Laryngology.

184. ZWILLINGER. (*Journal American Medical Association*, September 4, 1897.) After enumerating the advantages of eucaïn, the author states that there are certain unpleasant by-effects which may limit its usefulness in the nose and throat. This refers to the burning sensation which, even in diluted solutions, occurs at the place of application. The hyperemia caused by its use also limits its application in nasal operations. *Scheppegrell.*

PROCEEDINGS OF THE MISSISSIPPI VALLEY
MEDICAL ASSOCIATION, LOUISVILLE,
KY., OCTOBER 5, 6, 7 AND 8, 1897.

Condensed Report by W. Scheppegegrell, A. M., M. D.

Medical Record, October 23, 1897.

The communications and discussions of interest in otolaryngology are as follows:

The Removal of Adenoids From the Vault of the Pharynx,
by Dr. L. C. Cline.

The author states that there is a great diversity of opinion regarding the use of anesthetics for the removal of adenoids. The majority of patients can be operated upon with equally good results by the use of cocain. He prefers the gradual operation to that done at one sitting, for the reason that there is less danger of otitis and hemorrhage. When an anesthetic is employed, a mouth gag is used. In tuberculous cases, the application of ichthyol is very beneficial. Various astringents can be used with advantage, but surgery is the only sure relief.

Surgery of the Air Passages in Children, by J. H. Coulter.

He considers the subject one of great importance, because of the high percentage of deaths from diseases of the air passages during childhood, on account of the respiratory and circulatory functions being exerted to their full capacity, and because reflexes in childhood are more prominent than in adult life. The parents of today should be taught that, with our modern methods, technique, and usually favorable prognosis, surgery in children is not the nightmare it formerly was. There is no longer any question of the bad effect of nasal obstruction upon adjacent organs. Any of the causes of nasal obstruction in children tends to septum deflection in adult life, and if for no other reason, the physician is bound to give them possible relief. Catarrhal deafness is almost always due to nasal obstruction. The entire field of pathologic condi-

tions of the nose does not only lie in the post-nasal space, nor is there any good reason why occlusion of the anterior chambers of the nose should not produce as many reflexes as does hypertrophy of Luschka's tonsil. Foreign bodies in the nose and throat were then considered. The after-treatment is important and cannot often be left with parents with any degree of satisfaction.

Discussion.—Dr. Crile stated that ordinarily, the physician should not perform a crico-thyrotomy, unless it is necessary.

Dr. Thomas suggested that many diseases of the air passages in children are due to systemic disturbances or to reflexes. Judgment to differentiate when to use surgery and when therapeutics is absolutely essential.

Chronically Diseased Tonsils, by Dr. H. W. Whitaker.

Seriously diseased tonsils are frequently underestimated in importance and left untreated, when they are undoubtedly very injurious to general health. In chronic disease of the tonsils there may be either hypertrophy, hyperplasia, or atrophy. Hypertrophy of the tonsil is found in the child; hyperplasia in the adult. The causes which induce chronic tonsillitis may be predisposing or exciting. Among the former, the most important is heredity; among the latter, are diphtheria, scarlet fever and the exanthemata. The author gives a comprehensive description of the symptoms usually present. Prognosis is good, providing excision is properly performed. The voice is vastly improved both in tone and quality after excision of the tonsils, and no deleterious sexual changes or perversion will ensue. In the treatment it is necessary to consider the hygienic, prophylactic, local, constitutional and surgical measures. The details of each is noticed and thoroughness insisted upon,

Penetrability of Vaporized Medicaments in Air Passages,
by Dr. H. M. Thomas.

Do vapors enter the alveoli of the lungs? All observers thus far have questioned such a possibility. The greatest difficulty has been in the mechanism of the instruments for vaporization, in that they have failed to break up the oil in sufficiently fine particles for it to enter the alveoli. The author relates in detail the results of his experiments,

mostly on animals, during the past two years; and gives his reasons for believing that under proper conditions the medicaments will enter the healthy lung, even to the alveoli. A variety of microscopical slides were exhibited, the specimens being taken from the lung of a patient in whom inhalation had been practiced shortly before death, which plainly showed the oil globules in the alveoli.

Epistaxis in the Most Serious Form, with Report of a Case Necessitating Ligation of the Common Carotid, by Max Thorner.

The author stated that in using the term epistaxis, reference is made to hemorrhages in which blood comes from the nose, and not those cases in which it merely passes through the nose. In the latter category is included bleeding from the pharynx, naso-pharynx, the accessory cavities, larynx, lungs, and stomach, as well as in cases of fracture at the base of the skull. The author considers serious cases only, those in which the ordinary styptics fail to check the hemorrhage. He refers to four cases in which the radical operation of tying one or both carotids was practiced, two of which proved fatal. He concludes with a report of a case in his own practice. It was that of a man who was struck with an iron ring across the bridge of the nose and right side of the face. Unconsciousness and profuse bleeding from the nose followed. The patient was removed at once to the hospital and the nose plugged. During the next 18 days the nose was tamponed repeatedly, both anteriorly and posteriorly, but each time after removal of the tampons the hemorrhage started afresh within 72 hours. The patient becoming almost exsanguinated, with high pulse and increased temperature, an operation was decided upon. The common carotid was ligated. The hemorrhages did not recur, and the patient was discharged one month after the operation.

The Thyroid Gland, by I. N. Love.

The author gives an interesting historical review of serum therapy, and particularly of thyroid therapy, and draws valuable deductions from his experience with it.

Officers Elected.—The following officers were elected: President, Dr. John Young Brown, of St. Louis; Vice-Presidents, Drs. A. J. Ochsner, of Chicago, and A. P. Buchman, of Fort Wayne; Secretary, Dr. Henry E. Tuley, of Louisville, Ky.; Treasurer, Dr. Chas. A. Wheaton, of St. Paul. Place of meeting, Nashville. Time, second Tuesday in November, 1898.

SIXTY-FIFTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.*

(Held in Montreal, August 31st, September 1st, 2d and 3d.)

SECTION OF LARYNGOLOGY AND OTOTOLOGY,

GREVILLE MACDONALD, M. D., President.

A DISCUSSION ON TURBINOTOMY.

Greville MacDonald, M. D.: Removal of larger or smaller portions of the turbinated bodies, whether involving only hypertrophied portions of the mucous membrane with the erectile tissue, or actually the bony substance supporting the latter, has been practiced more or less by us specialists ever since, I imagine, we first encountered individually those striking cases where the operation would obviously and necessarily cure the patient of whatever symptoms might be attributable to such pathological causes. But yet, curiously enough, it is only quite lately that the word turbinotomy has become one of daily use. And this indication of an enlarging interest in the subject inclines one to ask the question as to what is implied by the term, why it should have only lately excited divergence of opinion, and whether any substantial improvements in our methods of diagnosis and operation may be supposed to have induced or resulted from this new departure.

As far as I am aware, the subject has excited but little interest, either in the States or Canada, beyond, of course, such points as have always been recognized by every specialist; but in London, at any rate during the past few years, wherever two or three laryngologists have gathered together, the word turbinotomy has always excited a deep interest. To one man the inferior turbinal is regarded as a structure to be sacrificed in the interests of such members of the public as are not cursed with atrophic rhinitis; while to another man the word turbinotomy is like the red rag to the bull, and the inferior spongy body is so sacred a member of the physiological system that disaster in some form or another ought to overwhelm, if not the patient himself, at least the misguided specialist who dares use the spokeshave.

Now, without being dogmatic, and without pretending to offer anything new on the subject, I think, for the sake of the interesting discussion before us, that it may be serviceable to point out, roughly speaking, the objects and limitations of operations involving the removal of portions or the whole of the inferior turbinated body. I suspect the discussion will prove of the greatest interest, and more profitable than is often the case, from the fact that it will partake of international character. Possibly our Canadian brothers are more familiar with the views of American specialists than we from the old country, but, for my part, I am extremely anxious to hear the views of the laryngologists on this side of the Atlantic.

I am leaving out of my remarks all operations on the middle turbinal, seeing that it is not usual to include this structure when using

* Reprinted from the official report in the *British Medical Journal*.

the word turbinotomy, and also because it would lead us into regions too vast to be even prospected in the time at our disposal.

Resection of the inferior turbinal in part may be required for the relief of (1) obstruction to respiration, (2) for the relief of the various neuroses; and (3) for the relief of a very troublesome and rather uncommon form of catarrh. For such affections, or symptoms, removal of those large cauliflower or ribbed masses, occupying more specially the anterior and posterior extremities of the bone, has been among the earlier triumphs of rhinology. I say triumph advisedly, for the not infrequent association of the posterior hypertrophy with adenoids, which latter the general surgeon now claims as falling within the pale of general surgery, enforces a real justification for the special study of nose diseases, seeing that it is precisely in such instances of association that the general surgeon will find himself at a loss to understand why his operation with the post-nasal curette, or forceps, has failed to restore nasal respiration. For the grosser of such hypertrophies, the incandescent or cold snare has always been the chief method adopted for operation, while the smaller of such enlargements are sometimes sufficiently treated with the electric cautery.

But there are cases where specialists of not very wide experience may fail to give all the relief they had hoped for by such methods. This generally arises from the fact that they overlook the masses often concealed in the concavity of the overhanging bone. We sometimes see enormous masses in this region, which can be turned out with a probe, and either cut off with scissors or removed piecemeal with the snare. The latter is often preferable, on account of the less hemorrhage it entails. I am somewhat anxious to emphasize this concealment of the much hypertrophied tissue for the sake of recording my experience that in nearly all such cases—and I have had my share of experience with them—a cure can be effected without interfering with the bone.

These cases, moreover, have appeared to me to be more often associated with asthma, as the cause of the neuroses, than are other affections of the nose; so that, for this reason alone, it is incumbent on us to inquire into every method advocated for the relief of the obstruction in the inferior meatus.

But, there are undoubtedly cases where the snaring or cauterizing of the mucous membrane is not sufficient to ensure the desired relief. In such respiration through the fossæ is not necessarily obstructed, and the specialist's attention is often drawn to the condition only by the accumulation ofropy mucus, or mucopus, in the inferior meatus, which the patient experiences the greatest difficulty in removing from the nose by the ordinary methods. He is constantly wiping the nose, being unable to blow the accumulation into the handkerchief. On examination we find the inferior meatus blocked with the accumulations.

Of course, the same condition may obtain in the ordinary form of hypertrophy, or chronic engorgement of the erectile tissue. But, in the special class of case to which I am now referring, we have neither one nor the other of these conditions. The mucus, in fact, is imprisoned in the concavity of the inferior turbinal, and secondarily in the portion of the inferior meatus internal to the turbinal, by the relatively large size of the bony structure of the turbinal. The free border of the latter may be almost, or quite, in contact with the floor of the nose, and in a few cases we see adhesion of the anterior part of the body to the floor beneath. This results in the formation of a pocket with, or without, a small opening in its anterior portion. Into such pocket the patient is constantly forcing the accumulations of mucus in his endeavors to clear his nose, the result being that he is never free. In one case, the wife of a medical friend who objected to operation, I was enabled to instruct her how

to find, with a fine nozzle attached to a syringe, the small anterior opening into the pocket, and thus to wash the accumulations backward. As soon as relief was thus obtained, it appeared to become permanent, and she had no further trouble from an affection which must have persisted the greater part of her life without inconvenience, until some catarrhal attack made her realize that something was amiss which prevented spontaneous recovery. In this case there was no actual hypertrophy, and in most all of such, I believe, the fault lies in a structural malformation rather than a pathological condition. Just as in the many and extraordinary malformations of the sputum, with which we have so often to deal, the fault appears to have originated in sort of error of co-ordination in the relative extent to which the sputum and the vertical diameter of its containing chamber have arranged for their individual extension, so the inferior turbinal appears to have attained the size which would have been suitable only in a nasal fossa with a greater vertical capacity. But I have never seen any case where the bony structure appeared to be too large in the posterior regions of the fossæ, any more than deviations or hypertrophies of the septum are to be found in the regions brought into view with the post-rhinal mirror.

In these cases the only treatment that can be considered satisfactory is the paring off from the free border of the bone as much of its substance as will secure a free passage of air and mucus. This can usually be attained with seissors, or the combined use of seissors and snare, as practiced by Dr. Dundas Grant. But it is only the anterior portion that ever needs such treatment, in my experience, and I have never seen any case where it was necessary to do more than this. I have never been tempted to remove large portions of the inferior turbinal, beyond the masses of hypertrophy with which we are all so familiar. And, although I have heard the views of those who advocate the larger operations on the inferior turbinal for the relief of obstruction to respiration, or for the removal of certain neuroses, yet, while amply convinced of the feasibility of such operations and of the relief they may afford, while even admitting that no appreciable harm may result in most cases, yet, let me repeat, I have for my part not seen the cases where the desired relief could not be acquired by milder measures. The great hemorrhage and the frequent necessity for plugging render the operation graver than almost any other in the nose; and we have yet to see whether, in the course of a few more years, we shall not see in these patients definite evidence of chronic inflammation of the larynx, etc., resulting as a consequence of the removal of what may be justly described as the secreting gland or organ of the nose.

Some years ago I spent a good deal of time in a series of experiments on the functions of the nose, more especially with the view of ascertaining the relative amounts of water and carbonic anhydride given off from the nasal mucosa, as well as the rise in temperature on passing a measured quantity of air through the fossa under varying physical conditions. Among these experiments were some with the object of ascertaining any differences in the exudations when the erectile tissue was collapsed with cocain.

Roughly speaking, I may say that the conclusions were these: That while the temperature to which the air was raised was not materially altered, the amount of water given off sunk to half, and sometimes as much as a third, from the diminished pressure and lessened blood supply to the mucous glands. So that, although there must be other glands in other regions of the fossæ similarly affected by the cocain, yet, seeing objectively the enormous degree of collapse of the erectile tissue when affected with the drug, and knowing that this must depend upon the blood supply, I think it is not assuming too much to infer that the removal of the whole of the inferior turbinal must lessen to a very grave extent the amount of

mucus secreted by the nose. In the second place, we are all familiar with the condition to which a chronic collapse of the erectile tissue conduces. We are familiar with this in a mild degree in anæmic individuals, in which it is not uncommon to see a slight degree of pharyngitis sicca, and a certain amount of chronic laryngitis. To a graver degree we are even more familiar with it in cases of atrophic rhinitis, where the inferior turbinals have often as completely disappeared as if they had been dealt with by the spoke-shave.

Granted such points, which are, indeed, among the most elementary of the clinical facts we specialists insist upon, it appears to me to be doubtful whether we are wise in resorting to an operation, which will deprive the patient of the least bit more of his erectile tissue than is absolutely necessary. It has been argued that the patient can do as well without his turbinals as without his tonsils, but the statement is obviously not justified. In the case of the tonsils there are presumably other organs in the body which fulfill a similar office, and are able for a little more work if some perform less. But in the case of the nose, it seems hardly likely that the remainder of the mucous membrane could supply all that is lost by the removal of so large a portion as that in question.

But, in conclusion, let me assert that I am fully aware that I have indicated only one side of the question, and I await with the greatest interest the other papers on the subject, and the discussion which I trust they will elicit.

T. W. Carnalt Jones, F. R. C. S. Edin.: I do not propose to say anything about the method of operating, or about the instrument, for I think that would only be a waste of time.

The operation was first tried in the hope of relieving most distressing tinnitus aurium in a case where both inferior turbinals had been cauterized with a satisfactory, but only temporary result. After spokeshaving the tinnitus ceased, but did recur occasionally, and then only very faintly when the patient was overtired, or below par.

My friend, Dr. P. H. Abercrombie, surgical registrar to the Central London Throat, Nose and Ear Hospital, wrote to over 100 patients who had been spokeshaved, asking them to answer a number of questions, and received answers from about 60, and from these answers and the information derived from them, and the consequent more careful watching of patients after operation, I have noted some after effects which I had not contemplated when planning the operation. It appeared that tinnitus was relieved in 60 per cent. of the cases. In some of these cases it did not recur while they were under observation.

The deafness accompanying the tinnitus was relieved when the tinnitus stopped, and the hearing power when tested by the watch was markedly increased. I am convinced that the unhealthy posterior extremities of the inferior turbinals act as foreign bodies at the openings of the eustachian tubes, and that by keeping up a constant irritation they are responsible for eustachian catarrh. It is easier to pass a catheter, or to perform politzerization after their removal, and some patients who could not use the Valsalva method on themselves could do so afterward, and by using the aural tube it was found that the air passed into the tympanum on inflation much more freely, and that the abnormal sounds—the creaking, bubbling, etc., gradually ceased.

Many deaf people are mouth-breathers; this is sometimes due to enlarged tonsils or adenoids, sometimes to the presence of both

troubles, but it is also sometimes due to turbinal hypertrophy, pure and simple, or complicated with spurs or deviations or deflections of the septum. Many mouth-breathers have been cured by spokeshaving, and have quite altered in facial appearance after a few weeks, the typical stupid expression having disappeared and given place to a bright and lively one. The patient, having learned to breathe through his nose, is less liable to catch cold, and in some cases quite loses his post-nasal catarrh, or pharyngitis. Asthma, hay fever, periodical attacks of sneezing, a sense of stifling when inhaling dust or foul atmosphere have ceased to distress the patient.

In some cases, in which only a strip of thickened mucous membrane was removed from the turbinals without any bone, great relief was afforded; this unhealthy mucous membrane used to swell up, when irritated, and cause nasal obstruction, with its reflex effects. Several ballet dancers found they could breathe more easily, dance with less fatigue, and were not so troubled in their breathing by the dust kicked up from the stage.

The sense of smell sometimes improved markedly. Several anemic girls lost their anemic appearance, and greatly improved in their general health without the exhibition of iron or arsenic, or any drugs.

It will readily be understood that, after an obstructed nostril had been cleared out and made pervious, the eustachian catheter could be passed more easily, and larger sizes could be used.

A child 4 months old could not suck properly. I did not find adenoids, as I had expected, but both posterior nares were blocked by the posterior ends of the turbinals. The child had to take its mouth away from the breast and gasp for breath between every two or three draws; twenty-four hours after spokeshaving the child took a full meal in a natural manner. In young children the nose developed and improved in shape after it was converted into a useful organ, just as is seen to occur after adenotomy. Several patients with pain in the eyes, affection of sight, and turbinal hypertrophy were cured of their eye trouble.

Hemorrhage always followed the operation, but was generally easily controlled, though troublesome in a few cases. Secondary hemorrhage was rare, but in one case it came on smartly exactly a fortnight after operation. Cooper-Rose's nasal plug is most effective in controlling the hemorrhage.

Otalgia, suppuration and perforation of the drum occurred occasionally, but were probably due to blood-clot or douche fluid being driven through the eustachian tube into the tympanum by too forcible blowing of the nose. Headache of varying severity and duration has followed the operation. Bromide generally relieved this at once.

It has been suggested that local depletion may have something to do with the relief of tinnitus; but this seems hardly likely when it is remembered that the relief has persisted for several years. The operation has not been found to be followed by bronchitis. No death has been attributed to the operation so far as I know.

Dr. D. Bryson Delavan, of New York, said that the subject was one of great importance because of the wide circulation which had been given to the idea of turbinectomy, and of the urgent necessity of checking a practice at once unscientific and objectionable. It was necessary to understand from the outset the physiological importance of the turbinated tissues. Their part in the normal process of respiration, that of cleansing, warming and moistening the inspired air, was indispensable to the health of the individual. Interference with this function, either through extensive destruction of the mucous membrane, as in dry catarrh, or the wholesale removal of the turbinates, whereby too great a volume of air was allowed to pass through the nose, was sure to be followed by bad

results. This statement would find ample proof in the experience of all present. Again, most obstructive conditions of the nose were due either to deformities of the nasal septum, or to thickening of the turbinated tissues. Removal of the former was pretty sure to be followed by relief. Where the obstruction was due to thickening of the soft parts it was necessary to discover whether the enlargement was purely local in character, or whether it depended upon general or remote cause. Thus, chronic hyperemia of the turbinated tissues was often associated with gout and rheumatism, with digestive disorders, with functional or organic derangements of various important organs, as well as with bad hygienic conditions, the excessive use of tobacco or alcohol, undue sexual stimulation, exposure to local irritation, and the like. The recognition and proper treatment of the cause of the thickening would often be followed by its cure, and the latter would be effected with the mucous membrane in a normal condition. The speaker agreed with Dr. MacDonald that posterior enlargement of the turbinated bones was unusual. He had examined many thousands of skulls, but had seldom seen it. Anterior enlargement was quite common. In most cases of turbinate thickening, removal of a part of the soft tissues was generally all that was required. No result had been reported in the paper of Mr. Jones which could not have been attained by simpler and less destructive measures. The application of his operation to young children was to be vigorously deprecated. The infant nose was developed very late. It was doubtful if the turbinates could be removed in a young child, in case they were to exist at all, without serious injury to important surrounding parts. The speaker could conceive few conditions in which such a procedure would be thought of, much less executed. The name "spokeshave" was itself suggestive of a coarse and inexact instrument, intended to prepare the way roughly for the use of finer tools. Its use in nasal surgery was totally inadmissible, as we were already possessed of ample means for securing all necessary results, and in an infinitely better, safer, and more conservative manner. It was necessary that the advocates of this method should publish the ultimate results of their works. It might then appear that such harm had arisen from it. The great desideratum in all nasal surgery must always be kept in mind, namely, the securing of the maximum of relief with the minimum of destruction.

R. P. Lincoln, M. D., New York, said: The subject of turbinotomy involves the consideration, not only of the details of the operation itself, but also the reason for it—the excuse, if you please. We are rarely called upon to do this operation, because the organ is itself involved by a disease that is of itself destructive locally or constitutionally, but because of their interference with the function of the organ of which they form an important part, or, it may be, the adjacent organs are the sufferers, or because of those curious manifestations through the nervous system we call reflex.

An operation having been decided upon and its character determined, its accomplishment must be preceded by a step, the failure of which may not only nullify our subsequent treatment, but hazard the life of our patient.

Antisepsis.—It is claimed that the normal secretion of the nasal mucous membrane is a destroyer of many of the morbid microbes passing over its surface in the course of respiration. Remembering that this secretion is perverted in the majority of patients applying for treatment, we recognize its conversion into a culture medium for diseased germs that are ever present and added to as the respired air is being filtered. In proportion, then, as this change from the normal obtains does the patient subjected to operation incur the danger of sepsis unless counteracted by scientific treatment, both preliminary and consecutive. Furthermore, the intra-nasal surgeon should ever

be mindful of the fact that a turbinate body is physiologically and anatomically most ingeniously constituted to harbor and transport diseased germs, and that he consequently cannot invade this organ with the impunity of surgeons operating in other fields. Not only should the nasal cavity that the surgeon is to invade be cleansed and rendered aseptic, but the operator's hands and all instruments used should receive, with the same object in view, his conscientious attention.

Granted the necessity for antiseptics, we have a long list of remedies available, but less than half a dozen need necessarily occupy our attention. The surface of the mucous membrane having been thoroughly cleansed by some alkaline wash, as Dobell's solution, three times a day for two days previous to and immediately before the operation, each sitting should be finished with very free spraying of a solution of bichloride of mercury, 1 part to 3,000 to 5,000. Subsequent to the operation a repetition of this spray and wash should be insisted upon, or if a fresh surface has been left, as after operations by knife, scissors, saw or trephine, a spray of a solution of iodoform in ether will prove the safest. Our methods might be classed as chemical and surgical. Of the remedies applicable in the former, fortunately all are more or less antiseptic, as chromic acid, nitric acid, etc., but until the eschar which they form has separated it is prudent to make use of the bichloride, and afterward of iodoform, until cicatrization is well advanced; but until the parts have healed cleanliness must be insisted upon, though during the last part of the treatment some less disagreeable remedy may be substituted for iodoform, as aristol, or better, pyoktanin. It may be said that results have been satisfactory and without accident where these precautions have not been observed. I reply, the probability of a successful issue is greatly enhanced by adopting advanced views of asepsis.

Every operation contemplated within the province of turbinectomy can be painlessly completed by the judicious use of cocain. Its advantage to the operator, and its blessing to the patient, can only be realized by those who were workers in this field before its local anesthetic effect was made known. I do not use it in spray form where a strong solution is to be employed, but to avoid its constitutional effect as far as possible, lay against the part to be operated upon a pledget of aseptic cotton saturated with it. This may be renewed two or three times at intervals of about ten minutes preliminary to the severer operations, except when it is the intention to make use of the cold wire loop, when, on account of its contractile action upon these structures, it should be applied after the wire has engaged the part to be removed. Furthermore, this preliminary employment of cocain on account of its hemostatic action diminishes the inconvenience of whatever bleeding occurs, which would otherwise be greater.

I would distinguish in two classes the methods by which I think our object can be accomplished most speedily and successfully, namely, the chemical and the surgical. The class in which the chemical method is applicable embraces hypertrophies, hyperplastic and angiomatous, without osseous enlargement. The remedies especially useful to secure reduction have been multiplied during the past few years, but every advantage can, I believe, be secured from a very small list. With chromic acid, nitric acid, and the galvano-cautery at command, every requisite is available. These remedies are easily and accurately applied, and circumscribed in their action. The contraction of cicatricial tissue, after the separation of the eschar thus formed, will often leave patulous a nostril previously obstructed.

Experience, shaping the judgment of an operator, will enable him to determine the area upon which the remedy must be applied, as

well as its strength, keeping in mind that we are to destroy an obstacle, but to preserve as much mucous membrane as is practicable. For some days following one of these applications the ingenuity of the surgeon, with the co-operation of the patient, may be devoted to cleansing the nostril of accumulated detritus and mucus, continuing to some extent the preliminary treatment, and substituting toward its termination promoters of granulation, astringent stimulants, as iodoform, aristol, pyoktanin, or some similar favorite remedy. It may sometimes be found advantageous to utilize some features of this treatment in the more serious cases of the second class. The operator must not lose sight of the necessity in order to accomplish his purpose of securing by treatment a solution of continuity in the periosteum, in order that the remaining network of connective tissue and venous sinuses may be drawn together, and, as it were, partly bound upon its bony framework.

The second class demands the more serious operative procedures, namely, where the frame work, as well as any redundant soft tissue, is to be removed by either incision, excision or ablation. The whole, or any part, may require removal. As with its erectile tissue covering, so its osseous portion may require modification in whole or part. We must consider how much and what part of the organ is to be sacrificed. We have in ignipuncture a combination of chemical and surgical treatment that I have often found most satisfactory in reducing hyperplasias, but unless great care is exercised its results are apt to resemble a galvano-cauterization. In its use a sharp pointed electrode, exposed from one-third to half an inch, is thrust through the mucous membrane to the bone, and pressed in contact with it as far as may be desired. An electrolytic rather than a cautery current, from the sensitive pole of a battery, should be allowed to flow for two or three minutes, depending upon the degree of distension or symptoms of threatened cauterization.

The cold wire snare and *écraseur*, as perfected and recommended by the late Dr. Jarvis, is most convenient and effective in removing a redundancy which often protrudes from the posterior aspect of the inferior and middle turbinates, readily cutting through both soft tissue and bone when desirable.

When the malformation is caused chiefly by osseous enlargement without hyperplasia, the surgical trephine is all that can be desired. With it there can be mined out, so to speak, all the bony substance we desire, leaving almost intact the remainder of the organ. Subsequently, should a fold of membrane remain in excess of what seems useful, it can easily be excised with a pair of scissors with little inconvenience. This instrument is also well adapted to opening into ethmoid cells by removing a "cap" of a turbinated body to facilitate drainage.

Most frequently, however, it is expedient to remove both hyperplastic and bony tissue at one operation. With a small sharp-pointed bistoury fixed at an angle to its handle, an incision is made down to the bone along or a little below the line we have determined, the excision shall be made. With some convenient instrument the lips of the wound should be parted and dissected away for a short distance, so as to leave a flap that will partly cover the border of bone when the operation is finished. A few strokes of a saw on the line elected for division, especially if ossification is well advanced, will facilitate the last step of the operation which follows. Immediately adjust with its upper cutting blade in the groove thus made a pair of bone forceps, having its lower blade well pressed under the free edge of the turbinated body; a strong closure, rotating inward the instrument at the same time, will sever the portion effectively. The instrument I use for this purpose is known as Weir's bone-cutting scissors. In this way from half an inch to an inch in length can be removed at once, and, by repeating this

method, practically the whole organ can be ablated at one sitting.

It is surprising how little bleeding follows, and how little pain. Immediately place in contact with the cut surface a fine roll of iodoform gauze, avoiding complete obstruction of the nostril. This serves the double purpose of disinfection and of preventing hemorrhage, which otherwise not infrequently occurs when the effect of the cocaine has passed. It is prudent to leave this undisturbed for about forty-eight hours, though accumulated mucus should be carefully removed by absorbent cotton and gentle pressure, not forgetting to use the bichloride or iodoform spray. After the removal of the iodoform gauze, the principles of treatment heretofore insisted upon should be observed.

The knife plow or the snare may be employed to remove a turbinated body. Their manipulation cannot be as accurate as in the last method; and, while there may be some saving of time, I do not recommend them in private practice.

Mr. Lennox Browne, F. R. C. S., Edin., of London, expressed regret that he had never been able to harmonize his own views on the value of this operation with the enthusiasm of Mr. Carmalt Jones; and he stated that it was the only subject of difference with his amiable colleague during over ten years of delightful association. He believed that it was wiser to treat the causes for relief of which turbinotomy was advocated by some of the milder measures so carefully detailed by Dr. Lincoln; and that, if this plan were pursued, a very small percentage—less than 1 per cent.—would be found to require this radical procedure. He wished particularly to call to mind the fact that spurs and deviations of the septum were present, not constantly, as stated by Bosworth, but in probably four-fifths of all cases of hypertrophic rhinitis, and that their etiological importance was demonstrated by the prompt relief of nasal obstruction afforded on their removal. He desired, in particular, to join with Dr. John Mackenzie in enforcing the inadvisability of operating on infants and young children; and he explained that the case described was, he believed, quite an exceptional one, even in the practice of Mr. Carmalt Jones; and that, though its parallel might occasionally present itself, it must always be rare. The speaker suggested that many of the cases of disordered secretion and flux ascribed to hypertrophy of the inferior turbinals were due to suppuration in the pocket of Luschka's bursa, as described by Tornwaldt, and he believed that it was a cause not infrequently overlooked, at least by British laryngologists. He doubted whether on histological examination by a neutral expert of removed turbinals a larger proportion would be found to be really diseased than had been proved to be the fact some years since by an American pathologist—whose name he for the moment forgot—in the case of ovaries removed by Batty's operation. Allusion had been made to the hemorrhage following turbinotomy; this was, without doubt, sometimes alarming, and, in the speaker's experience, increased rather than diminished by the use of cocaine; for the purpose of minimizing this liability to bleeding on reaction from the effects of this drug, not for turbinotomy alone, but for all cutting operations within the nose, he had long been in the habit of dissolving the cocaine taken fresh as required, in hazelin, a well-known extract of the witch hazel. There were other points on which the speaker addressed the meeting, but as most of these were in agreement with the experience of others given in this discussion, they need not be retold in this abstract of his remarks.

Dr. W. Permewan, of Liverpool, was pleased to hear Drs. Delavan and Mackenzie object to the use of the word spokeshave. Spokeshaving suggested operation on inanimate structures, and Dr. Permewan was afraid that idea dominated those who practiced extensively the operation of complete turbinotomy. Dr. Permewan was

of opinion that the complete operation was very rarely required, but he also thought we were indebted to Mr. Carmalt Jones for the introduction of an instrument which was very useful for the removal of parts of the turbinal, or of the septum. He was very pleased to hear the almost unanimous opinion of American rhinologists as to the undesirability of complete removal, and thought, also, English opinion had progressed in the direction of conservatism since the meeting of 1894, at Bristol.

Dr. W. H. Daly, of Pittsburg, said that turbinotomy did not mean, or should not mean, removal of all the turbinate, but only so much as was absolutely necessary to provide for proper nasal respiration; anything more was wrong. There were really no hard-and-fast rules that applied to the adult requiring turbinotomy that did not also apply to the child. He had done it several times, and within the previous ten days he had removed a part of both inferior turbinate bones from a child 2 years old; there were no pharyngeal adenoids, and no other obstruction to nasal breathing, other than that caused by the two inferior turbinate bodies projecting across the nares, and impinging upon the septum; they were abraded in about half their extent with the best possible results to the patient, and a recognized cure of the disability in the part; afterward the child slept soundly, quietly and comfortably.

Dr. Charles Warden, of Birmingham, was pleased to find that there was a consensus of opinion on this operation amongst the members present to the effect that the operation was often performed when less severe treatment would relieve, as by cocaine, chromic acid, eucain, the electric cautery, menthol, etc. In very young children, except in very rare cases, it was quite unjustifiable. The turbinates had a physiological function which should be carefully considered before adopting heroic surgery. Attention to the septum would often obviate the necessity for the operation, and it should not be done to enable the eustachian catheter to be used.

A Contribution to the Study of the Anatomy of the Fronto-Ethmoidal Region. By J. H. Bryan, M. D., Washington, D. C.

In this short communication it is my desire only to call attention to a few of the variations from what we have been taught by the anatomist to consider the normal conditions of the fronto-ethmoidal and the fronto-maxillary regions.

Lying between the ethmoidal cells and the frontal sinus there are a series of cells known as the fronto-ethmoidal cells, which properly belong neither to the frontal nor the ethmoidal cavities, but play a very important *role* when either of these sinuses is the seat of a prolonged suppurative inflammation; for, in nearly all such cases, they are to a greater or lesser degree affected, thereby rendering prognosis of these conditions very uncertain.

These cells vary in number from four to seven on either side, and in the preparations I have examined I have been unable to find any communication between them and the frontal or ethmoidal cavities proper.

The anterior cells are occasionally found unusually developed, projected into the frontal sinus to such a degree as to diminish the size of that cavity considerably. In some frozen sections I have recently made this projecting anterior fronto-ethmoidal cells is well shown. Dr. Cryer, of Philadelphia, exhibited at the last meeting of the American Medical Association some interesting sections in which the same condition was more marked than in my preparation. It will be readily seen that in treating chronic empyema of the frontal sinus we must not limit our investigations simply to that cavity, but endeavor to ascertain the condition of these cells also; for if affected, and they generally are, they will be the starting

point for a reinfection of the sinus after the inflammation has apparently subsided.

In all cases of chronic frontal sinusitis of long standing the fronto-ethmoidal cells should be opened with a sharp spoon, and the frontal sinus made to communicate freely with the nasal cavity, thereby insuring a free and permanent drainage.

The relation of the maxillary sinus to the cavities above is most important, for, while it is frequently affected independently of the frontal and ethmoidal sinuses, abscess of this cavity is occasionally, nevertheless, a secondary process to either an ethmoiditis or a frontal sinusitis, resulting either from a direct extension of the inflammatory process, or acting as a reservoir, and receiving the septic secretions as they pass through channels between the ethmoidal and maxillary, or the frontal and maxillary cavities. These communications are frequently pathological, as Zuckerkandl¹ has demonstrated, but there are passages which exist normally, especially between the frontal and maxillary sinuses. In a paper read before the American Laryngological Association in 1895, I described a preparation in the Army Medical Museum at Washington, in which the frontal sinus communicates directly with the antrum by means of a groove found just in advance of the hiatus semilunaris. Secretions from the frontal sinus in this case would find their way into the antrum in preference to the middle meatus.

MacDonald² states that Dr. Curnow, of King's College, has observed this condition also, while the late Professor Leidy observed it in two or three instances. This has been considered a rare variation from what we have been taught to consider the normal position of the infundibulum. Recently Dr. Fillibrown³, of Boston, has made some investigations of the subject, and finds that the infundibulum, instead of terminating in the middle meatus, continues as a half tube which terminates directly in the foramen of the maxillary sinus. In seven heads examined there was a fold of membrane which served as a continuation of the unciform process, thus forming a pocket which would effectually prevent any frontal sinus secretion from passing into the middle meatus until the antrum was full to overflowing. In a private communication he states that he examined fifteen more specimens and found the infundibulum as above described in all but two; in one the pocket was of bony formation; from this it would seem to be a frequent anomaly. If it occurs as often as this, it suggests a ready explanation why so many cases of chronic maxillilla abscess resist treatment to such an extent. It is a subject that should be still further investigated: and if this position of the infundibulum should be established, I believe the source of a great deal of maxillary disease will be found in the fronto-ethmoidal region, but the secretions passing from one or both cavities into the antrum. A brief reference to two cases, which have been previously reported, may serve to emphasize the importance of looking beyond the maxillary sinus for the source of the suppurative process so frequently found in that cavity:

"CASE I was that of a man operated upon by me eight years ago for an abscess of the antrum. At that time the ethmoidal cells were supposed to be affected also, but this could not be positively established. Since then he has been under almost continuous treatment at the hands of various specialists, and what treatment he could give himself for a supposed obstinate suppurative inflammation of the antrum. After an interval of over seven years the patient came under my observation again. Upon examination the antrum was found full of pus, which he was able to wash out himself through a

¹*Transactions of American Laryngological Association, 1895.*

²*Op. Cit.*

³*International Dental Journal, January, 1897.*

permanent alveolar opening. A rhinoscopic examination revealed extensive caries of the anterior ethmoidal cells, and a large communication with the frontal sinus, through which a probe would be readily passed. All irritating applications to the antrum were prohibited, and the treatment was directed to the removal of the carious ethmoidal cells, which was done by means of a sharp spoon. After an interval of eight weeks the antrum was practically free from pus, the slight secretion that continued to form passing readily out of the nose.

"CASE II was that of a woman who came under my observation several years ago, suffering from an abscess in the frontal, ethmoidal and maxillary cavities. The antrum was opened through the alveolar ridge, and the frontal sinus at the inner angle of the orbit. In the course of the treatment solutions injected into the antrum found their way out through the frontal sinus opening, thus showing there was a direct communication between the two cavities."

In Case II the antrum was probably infected secondarily from the frontal sinus, as there was an absence of dental caries and intra-nasal disturbances, which would have been apt to lead to a primary maxillary inflammation. In Case I the communication was probably of a pathological origin; but it is cited here to show that the source of the maxillary secretion was from the ethmoidal region, and not from the cavity itself.

I believe if a little more attention were paid to what is known as the fronto-ethmoidal region, many of the so-called incurable cases of maxillary abscess would not occur; for it is my opinion that most of the infection takes place from this point, both upward into the frontal sinus and downward into the antrum. This opinion is somewhat strengthened, so far as the latter cavity is concerned, by the peculiar pouch-like condition of the infundibulum just described, which catches all secretions coming from above, and directs them into the maxillary sinus.

Dr. S. W. Langmaid said that there could be no doubt that reinfection from the ethmoid cells in cases of disease of the maxillary sinus did occur. He had seen two such cases in which cure of the maxillary suppuration was only obtained after the anterior ethmoid cells had been opened and curetted.

The Relation of Nasal Disease to Pulmonary Tuberculosis.

By E. Fletcher Ingalls, A. M., M. D., Chicago.

The popular belief that nasal catarrh in some of its forms leads to pulmonary tuberculosis, together with the comparatively recent articles upon this subject written by S. E. Sully, of Colorado, and W. Freudenthal, of New York, inclines one to accept the opinion that a large percentage of cases of pulmonary tuberculosis is the direct result of disease of the upper air passages, commonly known as catarrh. Again, the common observation that nasal obstruction causes great impairment of the general health, and also the presence in many cases of nasal obstruction of chronic inflammation of the mucous membrane, forming, as we believe, a suitable nidus for the growth of tubercle bacilli, suggests an etiological relation between catarrhal affections of the upper air passages and pulmonary tuberculosis. If such a relation really exists it becomes of great importance that it be known in order that the catarrhal affection may be treated and cured as promptly as possible. If, on the other hand, such relation does not exist, it is equally important that this also should be known in order that the anxiety experienced by many sufferers from this disease may be relieved.

TABLE I.—*Relation of Nasal Disease to Pulmonary Tuberculosis. Author's Cases.*

Phthisis without nasal disease.....	591	
Phthisis with nasal disease.....	237	
Phthisis not examined for nasal disease.....	422	
Total phthisis.....		1,272
Nasal disease without phthisis.....	4,714	
Nasal disease with phthisis.....	237	
Total nasal disease.....		4,951
Without phthisis or nasal disease.....		6,058
Total examined, omitting 237 repeated.....		14,953

TABLE II.—*Combination of Nasal Diseases and Phthisis in Author's Cases.*

Nasal Diseases.	Stage of Phthisis.				Total.
	First	Second.	Third.	Not Stated.	
Exostosis of septum.....	86	30	11	4	131
Hypertrophic rhinitis.....	26	5	4	1	36
Exostosis and hypertrophy.....	12	5	—	—	17
Atrophic rhinitis.....	10	8	2	—	20
Polypi.....	1	1	1	—	3
Deflection of septum.....	9	8	3	—	20
Chronic rhinitis.....	1	—	1	1	3
Erosion of Septum.....	3	2	1	—	6
Perforation of septum.....	1	—	—	—	1
Total.....	149	59	23	6	237

Although fully realizing the difficulty of demonstrating anything accurately by statistics, yet I think an analysis of a considerable number of carefully kept clinical histories may be of value in elucidating this question. With a hope, therefore, of adding something to our knowledge of this subject I have, with the aid of Frank E. Pierce and E. E. Stevenson, searched the medical literature referred to in the *Index Medicus*, and have studied the histories of 14,953 individual cases of private patients that have come under my care between June, 1883, and June, 1897, during which time my work has been confined to diseases of the nose, throat and chest,

Of these cases I find that 4,714 were affected with nasal diseases, but did not have pulmonary tuberculosis; that 1,272 were subjects of pulmonary tuberculosis; and of the latter, 237 had also some form of nasal disease, popularly known as catarrh. As I have in these records no exact means of determining the proportion of these various diseases to the whole number of healthy and diseased individuals, it is manifestly impossible to make positive deductions from these figures, and unfortunately other writers on this subject have usually ignored this most important element in the study of this question. I find two or three facts in medical literature that enable me partially to remedy this defect.

D. Bryson Delavan, of New York, found by the examination of several thousand skulls of the European race that 50 per cent. had more or less deflection, or exostosis of the septum, which is the most prominent of the diseases that have been considered causative of pulmonary tuberculosis. If to this we add all other varieties of catarrh, we shall probably find that about 75 per cent. of the human family suffer more or less from these affections, though often not sufficiently to attract attention. From recognized authorities¹ we learn also that about 12 per cent. of the human family die of pulmonary tuberculosis, but we do not know how many recover from the disease.

¹J. B. Hamilton, *Jour. Amer. Med. Ass'n*, June 12th, 1897.

The records of necropsies show that in 25 per cent. of all bodies where death has occurred from other than tuberculous disease evidence is found of previous consolidation of the lungs, apparently of tuberculous origin. Adding this to the 12 per cent. that die of phthisis pulmonalis, we are led to infer that 38 per cent. of the human family at one time or another suffer from pulmonary tuberculosis, as against about 75 per cent. with diseases of the upper air passages, or nasal catarrh. It is probable, however, that a large proportion of the tuberculous, as well as of the catarrhal, cases recover spontaneously, or for other reasons escape the notice of the physician during the patient's life. These statistics point to a greater prevalence, not only of catarrhal trouble but also of tuberculosis, than is generally suspected; yet the conclusions regarding the frequency of the latter seem to be well sustained.

Coming to my own cases, because of the nature of my work, I feel it reasonable to conclude that 12 per cent., the known proportion of deaths from pulmonary tuberculosis to the whole human family, would be to the whole number of cases of tuberculosis shown in these records: as x (the percentage of pronounced nasal disease) would be to the whole number of cases of nasal disease shown in these records, that is, 12 per cent. : 8272 :: x per cent. : 4951. $x = 16$ per cent., which may be considered the ratio of well-marked nasal disease to the normal population. An examination of my statistics shows that about 8 per cent. of the cases were of pulmonary tuberculosis, and about 33 per cent. of nasal disease, being a ratio of about 1 to 4, which is practically the same ratio demonstrated in the problem just given. I, therefore, conclude that it is approximately correct. If 12 per cent. of the human family have catarrhal disease of the upper air passages, and 12 per cent. of the human family suffer from pulmonary tuberculosis, then it appears that there can be no etiological relation between the two; yet, we might possibly err in this deduction, for if 100 per cent. of the tuberculous patients suffered from the catarrhal disease, then it would appear that the two were always associated. However, if only 12 per cent. of the tuberculous patients had the catarrhal trouble, it would be proved that the occurrence of these affections together was merely a coincidence, for the ratio is the same as in all other persons. If, however, 46 per cent. of the human family have catarrh, as appears to be shown by these statistics, then at least a similar percentage of all tuberculous patients should naturally be affected by it, and the percentage must be still larger in order to indicate any etiological relation. My histories, taken in the early part of the last fourteen years, were not always complete; an examination of the nose often being omitted if the patient complained of no symptom referable to that organ, and in many instances where the examination was made it was not recorded when the parts were found healthy; consequently I have only 830 cases of pulmonary tuberculosis in which complete records of the condition of the nasal cavities are given. Excluding all cases in which the record was incomplete, I find that nasal disease was present in 237, which is only a little over 28 per cent. of these 830 cases. Of the 237 cases which make up this 28 per cent. I find that 168 consisted of exostosis and deflection of the septum, which, according to Delavan, is present in 50 per cent. of all persons of the European race; therefore, many of these could have had no possible influence in causing the pulmonary tuberculosis. Further, my records show that of all the cases of pulmonary tuberculosis, 1,272 in number, only 27—or about 2 per cent.—complained of having had any previous nasal disease, which is 4 per cent. less than the normal average. Even taking only the cases in which nasal disease was found to exist with pulmonary tuberculosis, namely, 237, we find that the 27 would make only about 13 per cent., or 33 per cent. less than the normal average. In whatever way, therefore,

these figures are looked at they appear to show that nasal catarrh is much more prevalent than pulmonary tuberculosis, and that it is much less frequent in a given number of tuberculous patients than in the same number of healthy people. In other words, these statistics seem to demonstrate that, instead of predisposing to pulmonary tuberculosis, nasal catarrh—if it has any influence whatever upon the latter—appears to prevent it. Although this analysis yields unexpected results, it would not be surprising if an actual antagonism should eventually be shown to exist between the condition causing the marked hyperemia of many catarrhal affections and the condition that causes the profound anemia of tuberculosis. A single exception to the above conclusion possibly occurs in the instance of atrophic rhinitis, 20 cases of which, amounting to about 8 per cent., were observed in the 237 cases in which catarrh and pulmonary tuberculosis were associated. Although this percentage of itself indicates nothing, the fact that 6 or 30 per cent. of these atrophic cases existed before the pulmonary diseases were detected, suggests that the two may have had similar origin.

Dr. Shurly, of Detroit, was glad that Dr. Ingals had brought up this subject, because of late a number of articles of a theoretical and statistical character had been published favoring the idea that disease of the nasal passages was an important etiological factor. The nasal and naso-pharyngeal sections had been shown to be directly germicidal, and he believed, therefore, that nasal disease probably had very little causative relation, except incidentally, to pulmonary phthisis.

Mr. Lennox Browne, of London, had hardly understood Dr. Ingals to express agreement with the view that nasal disease constituted a frequent factor in the etiology of pulmonary tuberculosis, and for himself he was prepared to oppose such a contention, if only for the reason that it was not possible to find any sure basis for the argument, if viewed from any one of the many aspects of the question. Neither clinical experience, statistical facts, nor bacterial science could furnish assured criteria, and there were still other possible influences which required to be dealt with, such as the geographical and climatic, and occupational, also hereditary vulnerability—albeit, that last was out of fashion in the present day. It could readily be understood that the whole constitutional state of a patient suffering from atrophic rhinitis was one strongly predisposing to phthisis, while as to catarrh so-called, it was very difficult to decide in the majority of cases whether a laryngitis of a pulmonary phthisical individual was tuberculous or non-tuberculous. It was, however, quite safe to remember that, while the secretion of the nostril in health was germicidal, the slightest deviation of the nasal functions might start into activity pathogenic germs which were lying dormant in the upper respiratory tract. In other words, it behooved the practitioner to give effect to the dictum of Trousseau, that a neglected catarrh might be a consumption commenced, and in this connection the figures and deductions therefrom so carefully collected and considered by Fletcher Ingals would constitute a valuable ground of encouragement to all who desired to advocate more stringently the prophylaxis of tuberculosis than was even yet generally admitted to be necessary.

The Significance of Laryngeal Paralysis. By W. H. Daly, M. D., Pittsburg, Pa.

The significance of laryngeal paralysis depends so entirely on its efficient cause, in a given case, that we can best consider it by saying that each case or class of cases is, as a rule, unto itself, and in order to indicate with any degree of accuracy the significance implied by the symptoms we must at once, in a given case, proceed clinically to trace the symptoms to their origin, and this is not easy.

In a case of laryngeal paralysis following diphtheria or scarlatina we are confronted with the significant probability of peripheral neuritis, and we can in most cases prognosticate a recovery in from six weeks to six months, according to the amount of damage which has been done to the peripheral nerve fibers of the larynx. The cure, however, can be much hastened by the interrupted or faradic current if the adductor supply is at fault, but the continuous or galvanic current will be found the most efficient if the abductors are the chief source of the disability.

Laryngeal paralysis in the chorus or choir singer suggests peripheral nervous exhaustion from too long sustained effort in singing, but nothing less than a careful search after the cause will enable this suggestion to be verified or refuted.

If the paralysis be on the left side it would signify to us the need to investigate the presence or absence of a tumor, or other cause of pressure, such as dilatation or aneurism of the aorta, in the region about its arch, where the inferior or recurrent laryngeal nerve arises in front of the arch and winds from before backward round the aorta, just beyond where the remains of the ductus arteriosus are connected with it, and from whence it ascends to the side of the trachea. If the paralysis be bilateral and the duration considerable, a resort to tracheotomy is advisable under the emergency of severe dyspnea. We may have a phonatory paralysis of the larynx without a paralysis of the respiratory forces, the former being a voluntary, the latter an involuntary act, beginning at birth and ending only with death.

Several cases of laryngeal paralysis that have fallen under my observation have been due to an undefined central degeneration due to hemorrhage or embolism. Another case of rather obscure or masked origin pointed significantly to a degeneration of the nerves in their course to the larynx.

Paralysis of the laryngeal muscles may be due to a lesion in either the brain, the nuclei of laryngeal nerves, the nerve trunks in the muscles themselves, and it may be due to hysteria. The existence of a cortical center for the larynx is now pretty well established. As early as 1877, Seguin¹ recorded a case of left hemiparesis, accompanied by impairment of speech and phonation, and a loss of control of the pitch of the voice. The experiments of Krause², Horsley and Semon³, and Massini indicate that the laryngeal cortical center is in the extreme anterior portion of the foot of the ascending frontal convolution. Garl⁴ has reported a case of paralysis of the vocal cords, in which the necropsy revealed a localized meningo-encephalitis at the lower end of the right ascending frontal convolution; and at the foot of the third frontal convolution, two small spots of softening. Wallenberg⁵ records a case of laryngeal paralysis, in which the necropsy revealed a complete destruction of the projection fibers from the laryngeal center. This last named investigator, as well as Brissaud, Déjerine⁶ and Collins⁷, hold the view that the laryngeal muscles have a bilateral cortical representation, but that the center upon one side innervates chiefly the muscles on the opposite side. With the evidence at hand, we are justified in locating the laryngeal centers in man in the frontal operculum, at the most posterior portion of the third frontal convolution, and at

¹*Nervous Diseases by American Authors*, p. 408 (cited by Mills.)

²Cited by Mills, Horsley, Delavan and others (op. cit.).

³*Phil. Trans.*, 1888, Vol. CLXXIX.

⁴*Annal. des Maladies de l'Oreille et du Larynx*, 1886, tome 12, p. 218.

⁵Cited by Collins, *Twentieth Century Practice of Medicine*, Vol. X, pp. 40-41.

⁶This investigator is supported in his view by two necropsies.

⁷Op. cit.

the most anterior and lowest portion of the ascending frontal, just at the junction of the horizontal and ascending ramus of the Sylvian fissure, and it is thought to be better differentiated on the right than on the left side. Localized laryngeal palsies of cerebral origin are rare enough, but the fact that they may occur should not be lost sight of; and in all such cases when opportunity presents, a necropsy should be secured, for further light upon this subject is needed.

It is unnecessary to speak of the pathological changes which may cause cerebral laryngeal palsy, for they in nowise differ from those which cause cerebral palsies of other groups of muscles; they are hemorrhage, softening, inflammation and edema.

The motor nuclei of the laryngeal nerves form part of the great pneumogastric nuclei, and may, like the nuclei of any other nerves, become the seat of chronic degeneration. This occurs, for instance, in bulbar paralysis, where several nuclei in the bulb are usually simultaneously attacked. It is possible that these nuclei may be the seat of hemorrhage or inflammation, but these lesions confined to the nuclei of the laryngeal nerves must be exceedingly rare.

Localized laryngeal palsy, already referred to, due to a lesion of the laryngeal nerve trunks, is far commoner than cortical or nuclear origin, and it is probable that the laryngeal branches of the tenth nerve are more frequently involved in disease than any other branches of that nerve, consequently this phase of the subject is of great practical importance. The superior laryngeal nerve is largely one of sensation, while the inferior or recurrent laryngeal is chiefly one of motion, although from the first-named nerve the crico-thyroid and lower constrictor muscles derive their motor fibers. Through the same nerve trunk pass two sets of fibers, one of which goes to supply the muscles which open the glottis, and another to those whose function is to close it. The glottis, essential for respiration and phonation, is widened in inspiration and closed in coughing, and to prevent foreign bodies entering the larynx. The various lesions, unilateral or bilateral, produce certain signs which need not be detailed here, by which they may be recognized.

The inflammation producing laryngeal peripheral palsy may be part of a multiple neuritis, or it may be localized in the laryngeal nerves only, or these nerves along with the pharynx may be involved. The causes which produce neuritis in the laryngeal nerves are the same as those which produce it in other nerves, but the toxic products engendered in certain contagious and infectious diseases, conspicuously diphtheria, are apt to set up a more or less localized inflammation in the laryngeal and pharyngeal nerves, producing certain palsies of the throat and larynx, because fibers supplying both adductors and abductors of the larynx are found in a single nerve trunk. Both these sets of muscles are apt to be involved in any peripheral nerve palsy.

Occasionally traumata (sometimes produced by the surgeon's knife) are responsible for peripheral laryngeal palsies. Laryngeal palsies may be due to none of the foregoing causes, but to muscular weakness, prolonged exhaustion, or local inflammation, or to hysteria. This last-named cause I will notice briefly. Laryngeal paralysis may be the chief (it can scarcely be said the only) manifestation of hysteria. The diagnosis is to be made by the exclusion of all other causes of paralysis, and a careful search for other sources of the disease and its stigmata. The paralysis is often bilateral, but it may be unilateral, and may be combined with a certain degree of contracture of the antagonistic muscles. Féré^s says: "These combinations produce veritable symptomatic paradoxes; a paralysis of the dilators of the larynx, which ought to produce aphonia, but

^s*Twentieth Century Practice of Medicine*, pp. 536-537.

gives rise instead to an inspiratory hoarseness with dysphonia, while expiration is free and the voice is unaffected. Aphonia is, however, the functional trouble which is most frequently associated with paralysis of the larynx in hysteria.

Hysterical paralysis may be distinguished from mutism by the fact that in the former condition the patient can whisper, while the mute does not do so. The onset is usually rapid in hysteria, and the duration is exceedingly variable, from a few minutes to many years. Cases have been reported where patients suffering from hysterical aphonia have talked in their dreams or sung. In some cases there is anesthesia of the skin over the neck, and the mucous membrane of the larynx may be anesthetic.

The discussion as to the etiology of laryngeal paralysis seems chiefly to turn upon paralysis of abduction, writers agreeing in general as to other paralysis. Thus (1) paralysis of the superior laryngeal nerve must often occur as a sequel of diphtheria, as associated with extensive disease of the central nervous system, and very rarely as the result of compression of the nerve; (2) paralysis of the whole group of muscles supplied by the recurrent nerve is due most frequently, especially on the left side, to pressure upon the nerve, more rarely to bulbar disease, ataxia, disseminated sclerosis, etc., and is very rarely due, probably, to local processes; (3) paralysis of single muscles is due to locally acting agencies—fatigue, catarrh, syphilis, etc.; (4) paralysis of adduction is the result, in most cases, of debility from various causes. Hysteria is a cause, but the hysterical aphonia is more properly a paresis than a paralysis. Lennox Browne considered it less frequent than has been thought, and that hysteria is frequently thought to be a cause owing to incomplete examinations too common in hysteria. Paralysis of abduction is attributed to three general groups of causes: (1) Lesions of the periphery; (2) lesions in the continuity of the nerve itself; and (3) lesions of the central nervous system. All these causes have their advocates, though the view that this paralysis is due to a central lesion is the predominant one, and is granted to the majority of cases by even those who believe in an efficient cause from other lesions.

Bosworth advocates this view alone, and though he admits the occurrence of cases as the result of pressure upon the recurrent nerve, he believes that in these cases also some pathological condition in the medulla is probably present. Semon, Mackenzie, and others, have reported cases due to pressure upon the recurrent nerve, and in a case reported by Von Ziemssen, not even microscopical changes of the nerves were found (Lennox Browne). Gowers mentions a case due to simple laryngeal catarrh, and another case during pregnancy and disappearance after delivery, suggesting this case to be of reflex origin. Semon, to account for those cases in which pressure upon the recurrent nerve causes abductor paralysis with no interference of adduction, made a number of experiments proving that under electrical stimulation the adductors have greater vitality than the abductors. Bosworth, however, considers these experiments made to be insufficient to explain the cases, and experiments made by Hooper and by Donaldson were not in agreement with Semon's results. The view has been advanced by Lennox Browne, Cohen, and others, that the superior laryngeal nerve may have a part in this paralysis, its action being that of an adductor through the cricothyroid and inferior constrictor muscles, and when from any cause the action of the recurrent nerve is suppressed, the superior laryngeal would predominate.

Dr. Shurly, (Detroit) said that in spite of the attention which had been paid to the functions of this apparatus by means of physiological experiments, and clinical and pathological observations, knowledge of the innervation of the larynx was still imperfect. He con-

sidered, however, that the fact had been established that there were two centers or sources of nervous action in the medulla and brain respectively; the one center especially presiding over the automatic, and the other over the voluntary currents going to and from the larynx. If this were so, it was obvious that perplexity must attend the diagnosis and prognosis of any neurotic disturbances affecting these parts. Cases classed as hysterical paralysis were often difficult to understand. When really hysterical they might be transient, but there were cases of this sort which were really the early signs of brain disease, and were sure to be followed by some form of mental aberration. The more transient cases were probably due to a temporary break in the insulating envelope of the nerve fasciculi, which allowed of short-circuiting, so to speak. The prognosis, however, on the whole, was as perplexing as the differential diagnosis.

Mr. Lennox Browne (London) said, that with regard to diphtherial laryngeal paralysis, it was worthy of note that this sequel was much more common in adults than in infants, and that in the former it was often persistent, thereby differing from almost every other diphtherial sequela. Dr. Daly had fully treated of paralysis of the left recurrent, and had pointed out that it generally indicated deep intrathoracic mischief, such as cancer, syphilis, etc., but he had left untouched the circumstance that in the rarer case of paralysis of the right recurrent the lesion was generally higher up, and, as Mandl first indicated, was usually due to apical mischief, pulmonary or pleural. As to hysterical aphonia, the speaker was in accord with Dr. Shurly, that it was more often a premonition of structural changes in the brain—or in the chest—than is generally taught, and the cases related by him were valuable clinical contributions. As to diagnosis of this form of laryngeal paralysis, it was useful to remember that in addition to the fact that while voice was aphonic, cough was phonetic; dumbness, otherwise paresis of articulation, was a sure sign that the loss of voice was only functional.

Dr. Bryson Delavan (New York) called attention to the fact that in right recurrent laryngeal paralysis, the presence of a lesion at the apex could seldom be demonstrated by physical exploration, although undoubtedly present in a certain proportion of cases. He had seen many cases in which it had been impossible to demonstrate the cause of the trouble, except possibly post mortem. As the subjects of the affection might live for many years, it was difficult to secure the necessary information on the question, and greater light was desirable. He mentioned two cases, both in women, in which right recurrent paralysis had apparently been caused by an attack of intra-laryngeal diphtheria, and had persisted in one case for six, and in the other for seventeen years.

Dr. Permewan (Liverpool) remarked on three points: First, as to etiology, he was of the opinion that in case of paralysis due to organic disease, syphilis, either directly or indirectly, was the most frequent cause. It acted either by the direct effect of gummatous deposit, or by the production of chronic disease in the nervous centers or peripheral nerves. Secondly, as to the significance of bilateral paralysis. This was most commonly due to central disease, but Dr. Permewan had recently an opportunity of observing a case of bilateral paralysis due to pressure upon both recurrent laryngeal nerves, and the possibility of this must always be borne in mind. Thirdly, the existence of hysterical paralysis of a definite character was, he thought, fully established. It was very important, however, to distinguish hysterical cases from those in which aphonia was only one symptom of complete paralysis.

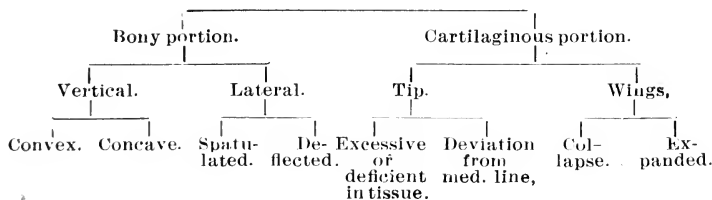
The Correction of Nasal Deformities by Subcutaneous Operations, by John O. Roe, M. D., Rochester, N. Y. [Abstract.]

Dr. Roe pointed out that the early advantage of subcutaneous op-

erations was the exclusion of air from the wound, thereby avoiding the subsequent inflammation that followed the exposure of the wound to the air, but that at the present time the only advantage of performing operations subcutaneously was the avoidance of a wound of the skin on any of the exposed portions of the body. The importance of correcting nasal deformities on account of the prominence of the nose, and the conscious effect of such deformities in influencing the habits and thoughts and social life of a person was then pointed out, and also the importance of correcting these deformities without wounding the skin, so as to leave as few traces as possible of the previous disfigurement. Nasal deformities were usually divided into two main classes—idiopathic or congenital, and traumatic or acquired; but from the surgical standpoint, Dr. Roe classified them into the deformities which affected the bony portion of the nose, and the deformities which affected the cartilaginous portion.

Deformities of the bony portion might be subdivided into (a) vertical—that is, those which distorted the dorsal profile, in which the dorsal line was too convex or too concave; and (b) lateral—that is, those which, when viewed from the front, presented unusual deviations from the normal contour, whereby the bony portion might be either spatulated or deflected. Deformities of the cartilaginous portion might be subdivided into (a) those which affected the tip of the nose, whether excessive or defective in the amount of tissue or distorted from its normal direction, and (b) those which affected the wings of the nose, which might be either collapsed or abnormally expanded.

Deformities of the Nose.



This classification of nasal deformities, however, did not apply to or include those deformities resulting from extensive destruction of the hard or soft parts by syphilis, lupus, or other diseases, or by accidents in which metallic or other artificial supports, or plastic operations involving the integument, were required for their correction.

Dr. Roe then described the different deformities as they were found, and the etiological relations which they sustained to local causes and various systemic conditions.

In the treatment of nasal deformities he pointed out that the beauty of the nose depended almost entirely upon its symmetry so long as the disproportionate relation between the size of the nose and the size of the face was not too great; therefore, in correcting the deformities of the nose, it was necessary to study the symmetrical relations of the different parts of the nose to one another, rather than its proportionate relations to the face. He also pointed out that owing to the great variety of causes and conditions of the deformities of the nose, the operations required for the correction of these deformities must be equally varied.

There were, however, general underlying principles governing the different operations which must be observed in order to accomplish the desired results. Thus in convex vertical deformities of the bony portion of the nose, or excessive development of the tissue of the tip of the nose, the excessive or redundant tissue must be removed;

whereas, in the concave vertical deformity of the bony portion of the nose, or the defective development of the end of the nose, the hollow portions must be filled in with tissue taken from some other portion of the nose where it could be spared, and the elevated portions reduced, so as to make the nose symmetrical. In the case of injury to the nose, in which there was displacement rather than destruction of the tissues, the operation consisted in replacing the tissues in their original position, or so adapting them as to render the contour of the nose symmetrical. In every instance, however, the operation was to be performed subcutaneously from the interior of the nose.

Dr. Roe then described a number of cases illustrating the manner in which the various operations were performed, and exhibited enlarged photographic illustrations of patients before and after operations. He also stated that there were three conditions which must be observed in order to ensure success in these operations:

1. The first was thorough antiseptic precautions, for if suppuration in the wound should take place, edgrafted tissues would be destroyed, and not only the object of the operation be defeated, but the deformity of the nose would be increased thereby.

2. In the next place, the plan of the operation must be carefully studied, in order that the tissues at disposal might be utilized to the best advantage.

3. In the third place, great care and attention subsequent to the operation were as important as the operation itself, for no matter how well directed the operation might be, the object could not be attained unless scrupulous attention was paid to the healing process. The parts must not only be held in place by retentive appliances, but the shape of these appliances and the dressing must often be changed from day to day, as the swelling subsided and the union of the parts took place.

Frequently the principal or main operation must be supplemented by minor operations for the correction of slight defects. An unduly prominent portion might require lowering, and a depressed part raising, and so on until the work was completed.

Recent Progress In the Surgical Treatment of Malignant Disease of the Larynx. By D. Bryson Delavan, New York.

The past two years several important papers and at least one extensive work upon malignant disease of the larynx have been published. These articles give not only the personal results of distinguished operators but two of them at least, the Lettsomian lectures of Mr. Watson Cheyne and the elaborate treatise of Sendziak, are most important additions to the general knowledge of the disease. The description of the operation and the after history of the case reported by Dr. J. Solis-Cohen, of Philadelphia, in which the free end of the trachea was brought out at the wound in the neck and there attached, all communication between the trachea and the pharynx being cut off, the man now alive more than five years after the operation, possessed of a good voice and without artificial aid either in breathing or speaking—marks an era in the history of laryngectomy, and constitutes a brilliant addition to the resources of conservative surgery. The reports of cases operated upon by Mr. Butlin and Sir F. Semon, of London, show that by the diligent care which they have bestowed upon their patients, the fertility of their invention in suggesting new devices or adapting old ones to their necessities, and the keen perception with which they have obtained the earliest possible diagnosis in doubtful cases, they are fully justified in the brilliant results which have been their well deserved reward. Another valuable contribution is the excellent report of cases of thyrotomy, by Professor Clinton Wagner of New York. In the latest publication on the subject Schmiegelow, of Copenhagen, gives a valuable

resumé of the diagnosis and treatment of laryngeal cancer, and reports twelve radical operations for its cure. Kocher is continuing his skillful work in this direction in Germany, while in the United States, as elsewhere, the influence of the improved methods and ideas which have come to us is gradually being felt and appreciated.

Turning now to the statistics of major operations performed upon the larynx for malignant disease there is evidence of a marked improvement, as, even during the past six years, the mortality from them has been greatly diminished. Thus, "Up to 1880, according to Holmer, the mortality was 42 per cent. Tauber reports between 1886 and 1890, a rate of 60 per cent. Between 1880 and 1888 Schier found that the rate had fallen to 34 per cent.; since 1890 the same observer finds that the rate for that period has been reduced to 22 per cent." Schmiegelow himself, carrying the reports up to the present time, finds that the percentage of cures since 1890 has been 13.5 per cent., and of immediate mortality 18.7 per cent. The most successful series of cases yet published is that of Butlin and Semon, who report a rate of cures of 63.6 per cent. It would be most gratifying if the flattering statements as to the improved statistics of this class of operations could be accepted as actually representing their true position at the present time. Undoubtedly in the cases of certain individual operators who, like Hahn, Butlin, Schmiegelow and some others, have faithfully and without reserve reported all of their cases, good and bad alike, we are able to gain from their reports deductions of genuine value. It is both discreditable and unfortunate, however, that many operators have failed to publish their unsuccessful cases, and have only reported such as have resulted well.

Time and again the operation has been attempted under unfavorable conditions, and by unskilled but venturesome men, whose rashness has quickly robbed the patient of what little hope belonged to him, and who, having nothing favorable to report, have avoided publicity. If the whole story were to be told, it is likely that the completed statistics would be discouragingly bad, not because the methods of treatment have not been vastly improved, but for the reason that in the hands of some operators the work has been so unskilfully done. This being the case in the surgical world at large, it cannot be insisted upon too urgently that carcinomatous cases requiring laryngectomy are desperate at the best, both as to immediate and as to ultimate results, and that with our present comparatively limited knowledge of the subject no amount of caution, however great, will avail in preventing a high percentage of failures. With the sources of danger so numerous, constant and subtle, it is impossible that too great foresight or experience be brought to bear against them, or that the urgency of this demand be overstated. Doubtless the best preparation for the work on the part of the surgeon would be a thorough knowledge of operations upon the tongue, neck, and lower jaw in general. In the after-care of the patient also it is not by any means enough that the watchers should be ordinarily qualified in the care of severe surgical cases. Nothing short of special fitness in the department of this particular class of cases, both on the part of surgeon and attendants, will yield the best results.

Turning now to the methods of operating which have of late appeared to meet the best success, we find that they may be divided into three groups:

1. Thyrotomy, with or without partial laryngectomy.
2. Complete laryngectomy by the method adopted in Solis Cohen's case.
3. Complete laryngectomy in cases of extensive laryngeal disease with glandular involvement.

Examples of all three are beginning to multiply to such an ex-

tent that it will not be long before we shall have a collection of details sufficient to afford fairly positive knowledge of their real value, together with a fund of technical information relating to the subject which cannot fail to be of material aid for future guidance.

A short consideration of these methods would not be without interest did time permit. Full and complete descriptions of them have already been given to you, however, and may readily be found in the columns of the journal of this association, in the Transactions of the American Laryngological Association, and in the London *Lancet*. If there should be any one who contemplates operating upon a patient suffering from malignant laryngeal disease, it will be well for him, however experienced he may otherwise be, to study the writings of Butlin and Semon, of Solis-Cohen, and of Watson Cheyne, with diligent care. Let it be said further, that such operations are too dangerous to be entrusted to any but the most careful and experienced hands.

In the diagnosis of malignant disease of the larynx the past year has brought little that is new. Indeed, investigation has of late succeeded not so much in developing a knowledge of new diagnostic points as in proving the unreliability of several which have hitherto been regarded as useful. Thus, the microscope has not succeeded in enabling us to differentiate between a simple growth of the papillomatous variety and one which in its earliest stages resembles a papilloma and fails to give the distinctive marks of malignancy, but which is in reality, or at least becomes, malignant. True, the clinical evidence in a case may aid the histologist in arriving at a correct interpretation of doubtful microscopic appearances, and, on the other hand, he must not be held to too great accountability for errors or uncertainties arising from faulty specimens—that is, from specimens of insufficient size or not inclusive of the full thickness of the growth. The practical difficulties in the way of utilizing the microscope to advantage in the earliest stages of the growth are very great. What is needed is some unerring sign or unmistakable reaction which will prove that there is a difference between cases which now appear identical.

In looking for an early sign of laryngeal cancer some have thought that the position of the growth was more or less diagnostic. Thus, a suspicious papilloma originating upon the anterior half of a vocal band was probably benign, while a similar appearance upon the posterior half of the band or in the posterior commissure was malignant. While the latter proposition may often be the case, the same cannot be said of the former, as has been the experience of the writer in more than one instance.

When the growth originates well forward in the larynx there is often the loss of another sign, namely, the restriction or abolition of the natural movement of the larynx in inspiration due to infiltration of the neighboring muscles. The writer has lately seen a patient in whom, with well marked epithelioma of the anterior half of one side of the larynx, the laryngeal movements were complete and absolutely symmetrical. Finally, hoarseness of the voice, the earliest and most constant sign in most cases of cancer, is also present in nearly every other disease which affects the interior of the larynx. Even if the true cause of it were to be surmised, the difficulty of proving the actual nature of the case so early in its course would make it impossible to apply surgical means for the attempted eradication of the disease on such slender grounds.

It has seemed for some time past that, while much progress was being made in the technique of laryngeal operations in general, and in the care of the patient and of the local wound after operation, the subject of tracheotomy preliminary to extensive laryngeal operation had never been satisfactorily considered. Thus, most writers upon the subject treat of it in combination with operations upon the

parts above, not always appearing to realize that the conditions as between excision of the jaw and laryngectomy may greatly differ and that what might be true for the one class of cases would not necessarily follow for the other.

Preliminary Tracheotomy.—We will consider two principal propositions regarding it:

1. Is preliminary tracheotomy a necessary measure in the surgical treatment of laryngeal cancer?

2. If required, at what time with relation to the major operation should it be performed?

The necessity for a preliminary tracheotomy is generally conceded and there are few surgeons who would attempt to operate under existing methods without resorting to it.

Murray in a recent article on the subject,¹ advocates its use on the well known grounds that it prevents the entrance of blood and septic matter into the trachea during the operation, and at the same time admits of the continuous and convenient administration of the anesthetic, thus permitting a complete and satisfactory operation. The possibility of the entrance of considerable blood into the trachea is a danger peculiar to these cases, and calls for every precaution on the part of the surgeon to avoid its occurrence. Should such an accident happen, sudden death by asphyxia may follow, or, if the patient be rescued by prompt tracheotomy, he may later succumb to septic pneumonia. While the degree of danger no doubt depends upon the quantity of blood which may gain access to the trachea, still it is not impossible that the entrance of even a small amount may be very disastrous. The liability of the aspiration of blood is increased in operations requiring considerable time, and where complete anesthesia, together with a recumbent position of the patient, is of advantage, and it is in this class of cases that the preliminary measure is of the greatest value. Of equal importance is the prevention of the entrance of septic matter. These, with other considerations which will be dealt with later on, prove without doubt that preliminary tracheotomy is a necessary adjunct to extensive operations performed upon the larynx.

More important than the subject just discussed, because less understood and appreciated, is the vital question as to when with relation to the major operation the preliminary tracheotomy should be performed. Some excellent surgeons, among them Mr. Watson Cheyne, advocate the insertion of the canula immediately prior to the main operation, on the ground that the patient is thus saved the anxiety and shock of two separate procedures, and because, as is claimed, that no special advantage is likely to be derived from its earlier application.

In the case of operations upon the tongue, the jaws, or the pharynx, this may possibly be true. In operations upon the larynx requiring tracheotomy, however, there is no doubt that many of the conditions are essentially different from those present in the procedures mentioned above, and that, for special and important reasons, the plan of operating must be so conducted as best to meet them. The conditions referred to affect not alone the convenience of the operator nor the mere comfort of the patient. They are based upon reasons physiological, pathological, and surgical. Upon the intelligent and skillful treatment of them will often depend the success of the case, and even the life of the patient. It is necessary to understand, therefore, what they are and how they may best be met.

Of the physiological conditions which distinguish extensive operations upon the larynx from those performed higher up in the air passages, the most important is the close proximity of the pneumogastric nerve to the site of the operation. Just how much influence

¹*Annals of Surgery, May, 1897.*

upon the successful progress of the case may be exerted by injury to this important trunk during operation or by irritation to it afterward from some of the various accidents of inflammation which may follow is difficult to say. Doubtless if the history of past cases of laryngectomy could be fully understood, much interesting and valuable information on this point would be brought to light. As a field for study, it is yet a comparatively open one. These are many cases, however, in which the symptoms of phrenic irritation seem to have been distinct, and not a few others in which obscure symptoms would very probably have found their explanation in it.

With regard to the insertion of the canula, it is certain that the irritation of this and other neighboring parts is apt to be more severe immediately after operation, and that with the lapse of a few days the tolerance of the patient to the presence of the tube is greatly increased.

More important even than the above are the changes which the tracheal tube necessitates in the physiology of respiration. The sudden elimination from the process of breathing of almost the whole of the upper air tract, with all which that implies; the exposure of the trachea and bronchi to air thus deprived of suitable preparation for its reception to the lungs, and, finally, the sudden increase in the amount of oxygen admitted in cases where pre-existing stenosis of the larynx has been severe—all tend to disturb the general equilibrium of the patient, and to cause locally a greater or less amount of annoying, or even dangerous irritation. It is desirable, therefore, that at the time of the major operation, and afterward, the patient should be relieved of as many of these complicating matters as possible.

Another consideration of interest in this connection is that in performing an early tracheotomy the changed conditions of respiration are assumed at a time when the patient is in a quiescent state, and when being mentally and physically less disturbed than it is likely that he could be after the major operation, he can, with the least physiological irritation, and the maximum of convenience to himself, acquire a sufficient knowledge of the mechanism of the tube, the peculiar management which it requires, and the effect of its use upon himself. The value of this preliminary experience has often been underestimated. Indeed, with a patient of fair intelligence, it is a good plan to fully instruct him beforehand in the different points upon which he should be informed. Thus, after operation, the patient will be able to receive with intelligence and with far less difficulty the directions which may be given to him, and his physical comfort and mental quietude be thereby greatly increased.

The performance of an early tracheotomy is thought by some to subject the patient, after the major operation, to the danger of septic infection from the tracheal wound. While it must be admitted that this is not impossible where the canula is inserted within a few days before laryngectomy, it does not follow that it will take place if the tracheotomy is performed at a time sufficiently long before the former to allow the wound to be tolerably well healed. Septic infection or pneumonia, if they were to develop, could hardly be due to the influence of the tracheal wound if the latter had passed the stage in which infection is likely to occur. Again, the general condition of the patient suffering from progressive laryngeal stenosis is invariably less favorable than when normal respiration is possible. The restoration of a sufficient supply of oxygen to the system is sure to be followed by improvement, especially in the anemia, malnutrition, and depression, which are generally present. In this respect, therefore, the early operation is of great value as preparatory to the successful issue of the later one.

The effect of laryngeal stenosis upon the bronchial mucous membrane is, of course, irritating, and especially in cases where the

dyspnea has existed for some time, bronchitis is often present. This will be materially benefited by the free admission of air to the lungs, and by the generally improved tone of the system which follows tracheotomy. Finally, there is one consideration which seems to have escaped general attention. In all cases of serious inflammatory disease of the larynx the severity of the symptoms is increased by the physiological use of the organ. The state of quietude which follows tracheotomy, from the consequent abolition of the respiratory movement of the larynx, is almost always accompanied by a marked amelioration in the local condition, which may continue to advance for several weeks. The advantages of this at the time of the main operation are obviously many and important, and in case where the congestion is such as to make it difficult to distinguish between diseased and healthy parts are sufficient in themselves to fully warrant the sacrifice of a few days' time. Where the diagnosis of a small and unirritated intra-laryngeal growth has been made early, and where in consequence there is no great amount of congestion, and, therefore, little prospect of improvement after tracheotomy, the above remarks do not apply. Cases are not unknown, however, where they are found to be of distinct value. It is hoped that they will be accorded the consideration which they deserve.

Several of the surgical advantages claimed for early tracheotomy have been generally recognized. Thus:

Much valuable time is saved at the performance of the later operation; the patient is spared a certain amount of shock, and possibly of hemorrhage, and the undivided attention of the operator can be concentrated upon the difficult task which confronts him in the removal of the larynx.

Again, the administration of the anesthetic through the cannula is rendered easier, both for the anesthetist and the patient, than when given in the usual way.

Lastly, a point of great practical importance has lately come to my notice in connection with the method of laryngectomy practiced by Dr. J. Solis-Cohen. In that operation the larynx is entirely removed and the severed end of the trachea is turned forward and fastened to the edges of the external incision in the neck. In a case of this kind orally reported to me several months ago, there had been no early tracheotomy, and, in consequence, there was no cicatricial adhesion of the parts, and when the edges of the trachea were stitched to the cervical wound there was free movement of the former, with every effort of respiration, and the sutures entirely failed to keep the parts properly together. Thus, union could not take place, the operation was a failure, and the patient died.

With an early preliminary tracheotomy considerable cicatricial adhesion takes place between the walls of the trachea and the wound in the neck, and while this is attended with no special disadvantage to the patient, it becomes a matter of vital importance when he must submit to Cohen's method of extirpation of the larynx. For the larynx having been removed and the severed end of the trachea brought out at the opening of the neck, the soft parts of the neck are already sufficiently adherent to the trachea by means of the cicatricial tissue to hold the united surfaces in steady apposition, and thus, with the aid of the proper sutures, secure satisfactory union. The value of this is obvious, and, therefore, need not be dwelt upon.

The truth of the above statements being admitted, there can be no doubt that early tracheotomy possesses advantages which should insure its employment in all suitable cases. It would also appear that the greater the interval of time within reasonable limits between the preliminary operation and the major one, the better, at least ten days being a desirable minimum. Of course, if the disease within

the larynx is making evident progress, and the speedy removal of the disease is imperatively necessary. the surgeon must be guided by the best judgment at his command. In most cases, however, the delay of a few days will be more than compensated for by the advantages which I have tried to describe.

Discussion on the Ultimate Results of Operations on the Mastoid. By F. Buller, M. D., Montreal.

The pathological conditions which necessitate operations for the removal of inflammatory products pent up in the bony spaces of the mastoid region may be considered under two headings:

1. Those in which the bone is inflamed and softened, with or without purulent infiltration, or more circumscribed collections of pus, but in which there is no actual caries of the bony structure.

2. Those in which actual death of the bone has occurred more or less extensively, either in the form of caries or necrosis, or both.

In the first class decomposition of the inflammatory exudation or of the tissues involved has not taken place, there is no fetid or ichorous pus. I am not prepared to say that fetid pus may not occur in this class of cases, but I have not seen it. As a distinct type of mastoid disease we meet with these cases during or shortly after acute purulent disease of the middle ear, and more often in adults than in children.

The second class occurs in the more chronic forms of middle ear suppuration, and more often in children than in adults, though by no means rarely in the latter. In these cases the carious bone may not be confined to the mastoid, but often involves other parts, such as the walls of the external auditory canal, the tympanic cavity, end, in fact, any part of the temporal bone adjacent to the mastoid or tympanum. It is obvious that this class of mastoid disease is far more serious than the former, and the results of operative treatment correspondingly uncertain, the cure more difficult, and often less complete.

I cannot at short notice give a definite statement, sustained by recorded facts, as to the final results of the many operations I have performed in both varieties of mastoid disease but of this I am certain, that in the first class I have never seen an unfavorable result when the bone was opened before the occurrence of intracranial complications. All such cases recover perfectly in a few weeks after operation, even to the extent of regaining perfect, or almost perfect, hearing; and I have never known this form of mastoid disease to recur on the operated side, though I have seen many of these cases ten, fifteen and twenty years after the operation. In other words, the cure is always permanent.

The results may be very different when there has been extensive caries of the bone, or perhaps only a limited caries, in an inaccessible position. When an operation is to be done under these circumstances no definite rules can be followed; the operator is simply obliged to follow, trace out, and remove diseased bone and inflammatory *débris* as he goes along, only staying his hand when he has removed all the diseased bone, etc., that can be reached, or when, in his judgment, prudence dictates that he should go no further. There is no particular reason to dread penetrating the lateral sinus, but the facial nerve is the structure which gives the operator greatest anxiety. He may find extensive destruction of the tympanic walls, the walls of the sinus, or adjacent cranial cavity. If such be the condition of things found, it is not to be expected that healing will always promptly ensue, that the discharging ear will at once become healthy, that hearing will be restored to any considerable extent.

Although most of these cases do ultimately recover—or, at least, do not terminate fatally—a certain proportion succumb to intracranial complications, others only get well after prolonged suppuration from

the middle ear, or from fistulous tracts leading to deep-seated residual diseased bone, often with great impairment, or sometimes total loss of hearing in the diseased ear.

The worst and most tedious cases of this kind are those in which there is obviously strumous diathesis; but even here the prognosis is not altogether hopeless, and much may be accomplished by prolonged and careful treatment, both local and general. Diseased bone, which could not at first be safely removed, may in time loosen and come away of itself, or be removed by means of secondary operations. My experience of operations for the relief of intracranial complications is so limited that I do not feel justified in making any positive statement as to the results attainable in such cases. I have only seen one case in which an abscess in the temporo-sphenoidal lobe was reached, after opening the mastoid by trephining the skull, and successfully evacuated, though I have seen several in which brain abscess might have been evacuated had a positive diagnosis been made soon enough.

I do not believe that the gravity and importance of mastoid disease is as yet fully appreciated by general surgeons. The writer of a well known work on operative surgery speaks of the operation: "This little operation may be performed so-and-so." He evidently imagines that the surgeon has done all that can be expected of him when he has succeeded in boring a hole through the outer table of that part of the skull. We otologists may be excused for thinking differently; we have learned that the more thoroughly we remove the diseased tissue the better will be our patient's chance of recovery. We know that the operation may be easy, simple and safe; but also that it may be most tedious, difficult and dangerous.

We never know exactly what we are going to meet with until we have begun the operation, and we never meet with two cases that are exactly alike in every detail. For individuality, mastoid disease bears the palm against all surgical conditions hence the increasing respect it commands from all experienced otologists.

[Dr. Buller also reported the following case, and observed that, although some of the notes of the case had appeared in previously published hospital reports, it had never been recorded from an otological point of view; the following notes had been made in order that the case might go on record as illustrating the course and progress to recovery of a very severe sequel to suppurating middle ear disease. For the report he was largely indebted to Dr. H. S. Shaw, late house surgeon in the Royal Victoria Hospital, and formerly his assistant there.]

"D. K., aged 10 years, was admitted to the wards of the Royal Victoria Hospital on May 18th, 1894, complaining of severe frontal headache and pain over the left mastoid process.

"*History.*—Five years before admission, after a severe cold and sore throat, the patient's ears began to discharge, and have been discharging intermittently ever since, and there has been marked deafness. On May 12th he was feverish, felt dizzy on standing up, and complained of frontal headache, and pain over the mastoid region. The pain continued to increase, so that the patient got no rest by night or day. There was no history of rigors, but occasionally vomiting occurred before his admission to hospital.

"*Condition on Admission.*—The patient was a well-nourished boy, rather dull of comprehension, but evidently suffering greatly. The temperature was 103°, pulse 88, respiration 30. There was chronic suppurative otitis media of both ears; on the left a comparatively recent exacerbation with pain. The left mastoid presented no external abnormality, except tenderness over the surface and posterior border, but without a trace of swelling. There was, however, moderate swelling and tenderness in the neck immediately below the ear, beneath the anterior to the sterno-mastoid muscle. The left

auditory canal contained a small quantity of very fetid secretion, which, when syringed out, was found to consist of epithelial *débris* and fetid purulent matter. The floor of the canal was occupied by a polypoid excrescence, about half filling the lumen. The state of hearing could not be determined certainly, but by Politzer's inflation there was found to be perforation of each tympanic membrane. Other organs were normal.

"Treatment.—One day after admission, the patient's condition being unimproved, Dr. Buller cut down on the mastoid. The surface of the bone showed numerous enlarged emissary veins behind the meatus, and the bone, easily penetrated by a cutting scoop, was soft and porous. At a depth of a few millimeters the softened bone was found carious and infiltrated with pus; following this, an opening was soon made into a large cavity, evidently the sigmoid sinus, which was found filled with fetid *débris*. After removing the discoverable diseased bone, and cleansing out the sinus, the wound was packed with iodoform gauze.

"Ligation of Internal Jugular.—Two days later, May 21st, as the temperature had not subsided, it was deemed advisable to ligate the internal jugular vein. Under chloroform Dr. Bell cut down over the course of the vein and came upon the sheath of the vessels, which formed a firm mass of infiltrated tissue, in which it was found very difficult to distinguish the structures. For the purpose of getting at the sheath more readily the omo-hyoid muscle was divided, and the jugular vein found empty at this part, which added to the difficulty of dissecting it out from the edematous tissue. The jugular was divided between two ligatures. The plugging was removed from the mastoid wound, and a considerable quantity of sloughy tissue removed with a gouge. After thoroughly cleansing the interior of the sinus, the membranous outer wall was pushed backward and inward, and the cavity packed with iodoform gauze. Subsequently the patient made an almost uninterrupted recovery, and left the hospital on July 4th, with directions to return for treatment of his otorrhea.

"Present Condition.—On August 30th, 1897, the wound in the neck and over the mastoid are marked by small scars. He has no pain or trouble in or about the ears, except that both ears are still discharging. The right ear has very fetid pus coming from a perforation in Shrapnell's membrane, surrounded by granulations. The left auditory canal is filled with a polypoid growth, but the discharge is not offensive. The watch is heard on contact in front of and behind the left ear, but not over the meatus, and on contact in the right ear. The case is now one of ordinary suppurative otitis media, which could be much improved by treatment, but is entirely neglected in his present surroundings."

Acute and Chronic Cases. By Albert H. Buck, M. D., New York.

In considering the question before us I shall follow the example of Dr. Buller, and limit my remarks to those cases in which the disease is more or less strictly confined to the mastoid region and middle ear. For our present purposes these cases may be considered in two separate groups—the acute and the chronic. In cases belonging to the former group the operation is almost always successful; and if, in course of time, it be found that operative interference has not arrested or entirely cured the disease, the inference is warranted that our methods of procedure have been in some respects defective. In the chronic cases an equally favorable result may be expected from a thorough removal of all bone tissue that is diseased. There, however, the interference required is apt to be much more extensive than in the acute cases. It is not always an easy matter to decide, from inspection and from the degree of firm-

ness which the bone manifests, whether we may safely allow it to remain. A high degree of vascularity, as shown by the color and by the persistent and copious character of the bleeding from the cut surface, and especially any evidence of an established stasis in some of the vessels, should be accepted as indications that the bone so involved is not likely to return to a condition of health, and consequently, should be removed. The mere presence of granulation tissue in the pneumatic cells (without any recognizable amount of pus), is also a good indication that the bony framework in their vicinity should be entirely cut away. The grosser indications of disease will scarcely escape detection, provided the field of operation is made large enough to bring all the suspected parts into view.

Risks and Complications. By Hugh E. Jones, L. R. C. P., M. R. C. S., Liverpool.

I will limit my remarks to cases of chronic suppurative middle ear diseases which have presented no acute symptoms, at any rate within the few weeks or months preceding the operation; that is to say, cases in which the operation has been one of expediency rather than one of urgent necessity. Within these limits, my experience has extended to about thirty cases.

The operation I have performed in the cases under discussion is the radical one known as the Stacke-Schwartz, or Panse-Körner operation. This is now so well known that it requires no description. The possible objections based upon results are:

1. *The Possibility of a Fatal Result.*—No fatal result has occurred in my cases. I have had two deaths in cases which do not come within the limits prescribed above. A baby (probably syphilitic), aged 3 months, with a large mastoid abscess, died from convulsions a few hours after a simple operation (incision and opening of the antrum). A man with extensive necrosis of the mastoid died of diabetic coma five days after the operation. The necropsy revealed the intra-cranial extension of the septic process.

2. *Facial Paralysis.*—This is undoubtedly a most distressing result when it does occur, but I think the operator suffers a great deal more than the patient. I have had two cases of temporary and two of permanent facial paralysis following operation. They all occurred in my first dozen cases. I think those who prefer the risk of intra-cranial complications to the risk of facial paralysis underrated the magnitude of the former and overrate the disadvantages of (partial) permanent facial paralysis—I say partial, because in my experience the paralysis has never been quite complete. One patient, a good-looking young schoolmistress, told me four years after the operation that she had not regretted the operation, because the relief from pain and discomfort had more than counterbalanced the disfigurement of the facial paralysis. That operation was done chiefly to relieve persistent pain in a densely sclerosed mastoid. Both the otorrhea and pain had ceased entirely. In order to avoid injuring the facial nerve it is imperative that the operator should see well into the depths of the cavity he is making. The difficulties in the way of this are the trickling of blood into the cavity and the unmanageableness of the partially detached auricle and the soft parts of the meatus. I have tried all sorts of metal retractors and guides without being entirely satisfied, and have resorted to a very simple plan which seems to me to meet the difficulty. A simple strip of linen 10 inches long, 2 or 3 inches wide at one end and tapering to a point at the other, is used as a retractor in the following way: After the auricle has been partially detached and drawn forward, and the soft parts separated from the meatus, the narrow end of the linen strip is pushed down to the bottom of the cavity so made; the blades of a pair of sinus forceps are then introduced into the meatus proper, and the end of the linen

strip caught and drawn through until the wide middle part covers the cut surface of the auricle; the ends are then given to an assistant, who pulls both forward together until the auricle and soft parts of the meatus are well out of the operator's line of sight. The pressure exerted on the cut surface stops the oozing of blood very quickly. I have had a similar instrument made out of India rubber, with bands for fixing it in position without the aid of an assistant, but I prefer the simple linen strip. This can be cut at a moment's notice from a linen or calico bandage, can be boiled, is never used twice, and costs nothing.

3. *Giddiness and vomiting* never lasted more than 24 hours, and caused much distress in one case only.

4. *Tinnitus*.—I have had no complaints of tinnitus as a result of the operation.

5. *Increased Deafness*.—Two cases of obstinate progressive deafness continued to get worse after operation.

6. *Failure to Improve Hearing*.—The great majority of my cases were definitely and several greatly improved. At least two cases improved from watch 2" or 3" to watch 18" or 20". This improvement has, however, not been maintained. As cicatrization proceeded the hearing is worsn again until watch 3" or 4" is reached. With the exceptions of the cases under the last heading, I am not aware that any case has ultimately been worse than before operation. Including the above exceptions, I can remember five which did not improve after operation.

7. *Failure to Relieve Pain*.—I can recall five cases operated on chiefly on account of pain. They have all been very much freer, and some entirely free from pain since the operation.

8. *Failure to Completely and Permanently Arrest the Discharge*.—This is, perhaps, the objection most frequently heard, and as the operation is in the majority of cases performed with the principal object of stopping an intractable suppuration, it is an objection which requires very careful and fair consideration. I am not prepared to quote accurate statistics, but, relying largely on my memory, I give what I hope is a fair account of my results. Of cases which have passed from observation from three to six months after operation, the great majority had ceased to have any discharge, though in some a little mucus could generally be detected lying in the fundus of the tympanum. Of those who have continued to come up for inspection at intervals, about half have dry tympana, with slight accumulation of wax. Four or five others have kept well for several months at a time, and then have had mild attacks of mucopurulent catarrh. The remaining four or five have never been perfectly free from a slight inodorous discharge of a mucus or mucoserous nature. Not one has, so far as my knowledge goes, had persistent offensive or blood-stained discharge. I have been able to compare with these cases concurrent ones of a similar nature, in which operation had been declined. I have no hesitation in saying that the comparison has nearly always resulted in favor of the cases which have been operated upon.

At first sight this statement may not appear to be a very favorable one, but if the following points are taken into consideration the reverse will be the case. The operation has only been done after all other means of stopping the discharge have been thoroughly applied. What does an intractable offensive discharge mean? To me it means a diseased area which cannot be effectually reached by remedies applied through the meatus. The operation under discussion, if properly performed, brings the whole of the diseased area within reach of effective treatment. In a fair proportion of cases it also disposes, for the time at any rate, of the whole of the diseased tissue,, but whether it does or does not then and there, or ultimately stop all discharge of any kind whatsoever does not appear to me to be a

question which affects the position of the operation as a sound surgical procedure. In the first place, the operation provides free drainage and brings the whole area of disease within the range of subsequent treatment; consequently, I have never known it to fail in leading either to cessation of discharge, or to a complete alteration in its character. In the next place, recurrence of inflammatory attacks in any organ exposed to the action of germs introduced from without cannot be entertained as an objection to an operation which makes those attacks comparatively harmless.

Again, as I have pointed out elsewhere, it is absurd to expect any cavity lined with mucous membrane to be entirely free from moisture. An absolutely dry tympanum is no more a healthy organ than a dry mouth, and for my part I am better pleased with the cases which continue to have a little mucus secreted in the tympanum than with those in which, owing to complete destruction of the mucous tissue, absolute dryness results,

Selection of an Operation—Bacteriology. By Clarence J. Blake, M. D., Boston.

The purpose of this communication is to present a series of thirty-six cases of mastoid operation occurring consecutively in my last three months' service in the aural department of the Massachusetts Charitable Eye and Ear Infirmary; they serve to illustrate certain important points, and include both the simple and uncomplicated, and the more serious and complicated forms of mastoid disease. They may be classified as, first, cases of acute inflammation of the mastoid, originating in acute inflammation of the middle ear confined to the contents of the mastoid process, and in which thorough evacuation of the mastoid contents and establishment of free communication with the middle ear through the mastoid antrum, followed by filling of the operative cavity with blood and closure of the external wound, resulted in what was practically a healing by first intention.

Secondly, cases of mastoid disease in which the mastoid cortex had become more or less involved in the destructive process, and the operative procedure consisted not only in the evacuation of the mastoid contents, but also in the removal of portions of the surrounding wall without attempt at primary healing.

Thirdly, cases in which, in addition to the disease already mentioned, there was implication of structures surrounding the mastoid process, and invasion either of the cranial cavity or extrusion of the suppurative mastoid contents posteriorly toward the occiput, or downward into the muscles of the neck.

Since it is possible to determine by examination of the outer contour of the mastoid process the corresponding contour of its inner wall, and, within certain limits, the depths to which the sinus wall projects into the lumen of the mastoid process, a tactile examination of the mastoid process before operation, or, if the contour of the mastoid is obscured by swelling of the soft tissues, a tactile examination of the mastoid of the opposite side is often of considerable service. Examination of a large number of crania has shown that marked deformity and symmetry of the mastoid processes occurs in about only 8 per cent., and that as a rule the narrow, small, and pointed mastoid has a deep groove for the sinus, and a consequently small operative triangle, while on the contrary, the broad, blunt, and rounded mastoid process is deeper posteriorly, and has an operative triangle of correspondingly greater size.

At the meeting of the British Medical Association in Leeds, Professor Macewen made the statement that American aurists were "afraid of the lateral sinus." This statement was perfectly just, and is more true than it should be today, after the splendid lessons which he has taught.

Of the 35 cases of mastoid disease requiring radical operation, and

occurring in the term of service above mentioned, one required a secondary operation, and another required operation upon both mastoids, making 37 operations in all. These 35 cases may be classed under five heads:

In class 1 were five cases, all occurring in adults, all acute, but with caries of the mastoid cell walls, redundant granulations, and pus in the mastoid. In these cases, after the usual opening through the outer cortex, the diseased contents were thoroughly removed by means of the curette, the healthy cortical walls being left untouched. This cavity was then allowed to fill with blood, the edges of the wound in the soft tissues were united by sutures, and an aseptic gauze dressing was applied. One of these cases was discharged well in seven days after the operation, one on the eighth day, two on the tenth day, and one on the twelfth day. These five cases were kept under observation in the out-patient department for two or more months, and remained solidly healed without symptoms of the recurrence of mastoid trouble. One of these cases, three weeks after his discharge from the infirmary, reported in the out-patient department with an acute inflammation of the middle ear on the operated side. The ear rapidly improved after a free paracentesis of the drum head, and the patient was discharged well at the end of ten days, having had in the interval no mastoid pain or tenderness whatever, and the discharge from the ear remaining serous during that time. Attempts to obtain primary healing were also made in 12 other cases, making a total of 17. This experiment was made in continuance of that of previous years, in order to determine the class of cases to which this procedure might be more especially applicable. Of the 17 cases in question, 11 were acute, and 6 chronic. The attempt at primary healing failed in all the chronic cases, but was successful in 5 out of the 11 acute cases. This observation confirms that previously made and first reported to the American Otological Society in 1891, and would seem, therefore, to justify the use of this method in all acute and uncomplicated cases of mastoid disease. No possible harm can result from it, since if the blood clot breaks down, the sutures can be easily removed, and the wound allowed to heal by granulation.

Class 2 included 18 cases (10 acute and 8 chronic) in which primary healing was not attempted, and in which it was not necessary to remove any portion of the mastoid cortex. Of the acute cases, all did well with the exception of 1, for which a secondary operation was necessary, and this case, therefore, comes under class 3. Of the other acute cases, 8 were discharged well at the end of periods varying from six to eight weeks after operation; the remaining case, a diabetic, is still under treatment, three months after operation. Of the chronic cases, 5 had been operated upon previously, and had been very slow in recovering, 1 required a secondary operation, 2 were well three months after the operation, and the remaining 4 are still under treatment.

Class 3 includes those cases in which, in addition to thorough evacuation of the mastoid, portions of the cortex were removed and the dura exposed. There were 9 cases (6 acute and 3 chronic); of the acute cases, 1 died of septic cerebro-spinal meningitis ten days after operation; 1 with a convalescent mastoid, was transferred to the out-department of the Boston City Hospital on account of measles, and died there two weeks later; 1 was discharged well in three weeks, 1 at the end of five weeks, and 2 are at present convalescent in the out-patient department. Three chronic cases are still under treatment in the out-patient department, and are slowly improving. In these 9 cases, pus was found in contact with the dura; in 5 the sinus wall was exposed during the operation, and in 2 accidentally opened with resultant hemorrhage.

Class 4 includes 3 cases, all acute. All did well, and in all the

abscess was very nearly in the same situation, namely, between the dura, and the posterior superior angle of the mastoid there were granulations on the dura, and in 2 cases the sinus was exposed for an inch or more by the operation; all of these cases were discharged well within six weeks after operation. In one of these cases, the inner wall and the tip was removed from both mastoids, and the pus was followed back into the jugular fossa, and the contiguous bony wall thoroughly curetted with good results.

Class 5 includes 1 acute and 1 chronic case.

In the acute case there was a small abscess in the brain over the mastoid antrum. The bony structure of the mastoid was very much diseased, and it was necessary to expose the dura over a large area, both superiorly and posteriorly. The patient had had for a few days before operation a characteristic septic temperature; this still continued, and the blood count showed marked leucocytosis, and there was also commencing retinitis on the affected side. Through an opening in the dura there projected a small hernia of the brain 1.5 cm. in diameter. This was at first supported by a firm packing in the wound, but gradually became covered with granulations. The wound is now completely healed and the patient well.

The second case was that of a poorly nourished Italian child, aged 5 years, who had had a suppurative discharge from the ear for four years. For two weeks before admission into the infirmary, there had been marked swelling behind the ear, and daily chills and fever, and at the time of admission there was a fluctuating area above and behind the ear, 3 inches in diameter antero-posteriorly, and 2 inches in diameter vertically, its center being just over the spine of the meatus. Pressure upon this swelling caused an outflow of thick offensive pus from the canal. The patient had marked general *malaise*, the temperature was 105°, the pulse rapid and weak, and there was marked stupor. Examination of the eyes showed beginning retinitis, and the blood count a leucocytosis of 35,000. The case was immediately operated upon, the large abscess cavity being first freely opened and curetted. The mastoid was extensively diseased, and the bone, including the cortex, was easily removed by means of the sharp spoon, and the dura exposed over an area an inch and a half in diameter posteriorly and superiorly. The opening in the bone being then extended a distance of an inch above the mastoid limit, the sloughing dura was removed and a large abscess found in the cerebellum, from which 3 or 4 drachms of pus were evacuated; the walls of the cavity were thoroughly curetted, and the wound carefully washed out and packed with aseptic gauze, and subsequently cleansed with peroxide of hydrogen and dressed with boric acid. Cultures from the pus showed numerous staphylococci.

During the two weeks following operation the patient had daily chills, followed by sudden rise of temperature to 106° or 108° F. This rise in temperature was followed by great prostration, with a thready and tremulous pulse and a condition requiring vigorous stimulation. The examination of the blood for the malaria plasmodium gave negative results. Ten days after the first operation, signs suggesting presence of a pus focus were so marked, that under ether a thorough examination with an aspirating needle was made, but no pus found. The temperature, however, gradually decreased, the chills ceased, and at the end of three weeks after operation, the temperature had become normal. At the present time the brain hernia is about the size of a pullet's egg, pulsates synchronously with the heart, is very sensitive to the touch, and is being gradually covered by granulation tissue. The patient is speedily gaining in strength, and is evidently making a good recovery.

The fatal case of septic cerebro-spinal meningitis also presents some points which are of interest.

The patient was a woman 21 years of age, neurotic, and in poor

general condition. She had acute inflammation of the left middle ear, with mastoid tenderness, four weeks before admission to the infirmary, and the first night before the mastoid operation had a chill, followed by a rise of temperature of 104° F. The mastoid cortex was found to be very thick, and the mastoid cavity divided into numerous compartments by bridges of very hard bone, which, however, broke down under forcible curetting, revealing small cavities filled with pus under considerable pressure. The softened and carious bone was thoroughly removed by curetting and the wound syringed, the water passing freely through the antrum and middle ear. The dura was not exposed, the cortex being apparently sound. A simple aseptic gauze dressing was used. Cultures from the pus showed streptococci and diplococci. The wound did well, and the patient was discharged to the out-patient department three weeks after the operation. During the last week in the infirmary, however, she had complained of severe frontal headache, and there was also occasional slight elevation of temperature. Examination of the eyes showed an error of refraction, which was supposed to be sufficient to account for the pain. After leaving the infirmary the headache grew rapidly worse, and the patient was urged to re-enter the house two days after her discharge; this, however, she refused to do, and did not return until a week later. As pain had in the meantime considerably increased a further operation was decided upon. The ear was perfectly dry, no bare bone could be felt in the mastoid wound, nor was there any tenderness, even upon deep pressure, about the mastoid. The temperature, however, was 103° F.; a blood count gave leucocytosis of 20,000, and there was also a suggestion of retinitis. The next day the pain grew worse, the patient became delirious, and the pulse dropped from 120 to 48 within an hour. The mastoid wound was immediately reopened and enlarged, all the remaining cancellous structure, as well as the tegmen and posterior wall, were removed, and the opening thus made exposed to view the dura to the whole depth of the mastoid and the sinus for over an inch; no pus was found, and the bone was only moderately softened. The sinus was accidentally opened and bled very freely, requiring plugging. The pulse became much improved, and at the close of the operation was 90. The patient passed a restless night, was still unconscious, and had a morning temperature of 105° F.; the head was slightly retracted, the neck rigid, the pupils uneven and responding to light very slowly, the reflexes were nearly normal.

Dr. J. J. Putnam saw the case in consultation, and performed lumbar puncture, withdrawing about 15 c.cm. of turbid fluid. The sediment was examined and found to contain streptococci, which were later obtained in pure cultures. The blood was examined daily, but with negative results, but the variations of the leucocytosis were very interesting. Before operation the count gave 20,000, as the disease progressed it went up to 40,000 on the seventh day, and then gradually declined to about 12,000. Slight facial paralysis was noted on the sixth day, and an eruption along the course of the facial nerve. The wound showed no signs of healing, was dressed daily, and the sinus bled quite freely when the packing was removed after the first three dressings; it then became closed with a firm blood clot. The exposure of so much surface of dura permitted observations similar to those previously made in like cases in children as to the effect of lumbar puncture on the cerebral tension; this seemed to be much decreased after the withdrawal of 30 c.cm. of spinal fluid, and the respiration dropped from 56 to 32 within a period of five minutes, and to 26 within an hour; this decrease lasted several hours. The lumbar puncture was repeated daily for a week, the fluid became more and more turbid, and the sediment from the last puncture constituted half the bulk of the fluid. As pure cul-

tures of streptococci were obtained from all these punctures the house officer, Dr. White, to whom I am indebted for the summary of the cases here presented, wished to try the anti-streptococcus serum. Beginning with the fourth day after the mastoid operation, it was, therefore, given in quantities of from 30 to 60 c.cm. daily, without, however, any apparent effect on the temperature, respiration, pulse, or general condition. The patient developed septic broncho-pneumonia on the eighth day and died on the tenth, but in the meantime the meningeal symptoms had decreased, and the dura was more normal in appearance. No necropsy was permitted.

It is interesting to note, in the brief review of these cases, that all of the cases of acute mastoid disease did well in the sense of speedy recovery, with two exceptions, and that the same may be said of 50 per cent. of the chronic cases. The other 50 per cent. of the other chronic cases were either very slow in healing or required secondary operation. Six of the chronic cases had been previously treated, but 3 did well in the sense of rapid recovery. It is interesting to note also that the mastoid was found to be diploetic in 22 cases, pneumatic in 14 and sclerotic in 1. In pursuance of the purpose to determine both the character and course of the infection, cultures were carefully made in all cases. In 23 but one germ was found, in 12 there was a mixed infection, and from 2 no growths were obtained.

	was found pure in 12 cases
Streptococcus	5
Staphylococcus	6
Diplococcus	5
Streptococcus and diplococcus	3
Streptococcus and bacillus fetidus	1
Streptococcus and bacillus pyocyaneus	1
Streptococcus and diplococcus	2
Streptococcus, staphylococcus and diplococcus	

The streptococcus cases were by far the most serious, although one healed by first intention. An interesting fact was noted in the series of cultures in regard to the infection of the mastoid from the middle ear; as a rule the same germ was obtained by paracentesis, as was later found in the mastoid. In one case cultures from paracentesis gave staphylococcus and diplococcus, while from the mastoid a pure culture of diplococcus was obtained, thus showing that the germ in the middle ear to commence with was diplococcus, which infected the mastoid, and that later on the middle ear was infected with streptococcus.

The results obtained from blood counts were also very satisfactory; whenever pus was in contact with the dura leucocytosis was found, while with the mastoid cortex intact, even though the mastoid was filled with pus, no leucocytosis was observed.

In conclusion, it may be said that this series of cases emphasizes the conclusions drawn from previous experience that all diseased bone, cortical or otherwise, should be removed and the pus followed to its ultimate extension; that, where possible, after thorough surgical cleansing by the operative procedure, healing by first intention should be favored; and that, in case of hemorrhage from the lateral sinus or from meningeal arteries, by rapidly enlarging the opening in the bony wall of the cranial cavity the normal brain pressure may be utilized to plug the vessels, and the operation continued without other interruption.

Points in Anatomy Which Have a Practical Bearing upon Operations on the Temporal Bone in Diseases of the Ear. By H. Lee Morse, M. D.

I wish to call attention to the position of the field of operation in Schwartze's and the Stacke's operations, and to the comparative danger, in the two operations, of injury to the lateral sinus, the

facial nerve, the tendon of the stapedius muscle, the stapes, and the horizontal semi-circular canal.

Diagram and bone preparations are exhibited in illustration of the points discussed. Two of the diagrams show, in connection with Schwartz's operation, the point where the lateral sinus approaches most nearly to the field of operation. The thickness of the bony wall which separates these two cavities at that point is 6 millimeters. If the distances of the field of operation from each of these dangerous points were noticed, it would be seen that in each case there is a reasonable space. In other diagrams showing Stacke's operation the sinus is laid bare. The field of operation, if carried inward to the inner bony wall, is seen to strike the horizontal semi-circular canal. It strikes also the Fallopian canal, in which lies the facial nerve. It comes close to, and almost touches, the tendon of the stapedius muscle.

We are told in the description of the operation (Politzer) to be careful not to penetrate too deeply on account of these dangers, and measurements are given to guide us, but the bones vary in dimensions so that no absolute depth can be laid down, and it is difficult in a deep operation in so confined a space to tell just how deep the tip of the curette has penetrated, and, therefore, it is not surprising that sometimes the facial nerve is cut, with consequent facial paralysis, especially when we consider that the nerve sometimes has no bony covering, or its covering has been softened or partially destroyed by disease of the middle-ear.

The chorda tympani nerve is almost of necessity cut, as it lies directly in track of the operation. The wall of the semi-circular canal, on account of its ivory-like character, is not very likely to be softened by disease, but it is possible that we might find it so, especially in children.

The tendon of the stapedius muscle and the stapes itself lie so close to the field of operation that, in our endeavors to scrape out granulation tissue or softened bone, the tendon would be very easily cut, the stapes dislocated, and the way laid open to the inner ear, by a slight variation in the direction given to the curette. All these considerations lead one to choose, whenever the choice is possible, the Schwartz operation.

The preparations I exhibit of the two temporal bones from the skull of a child show that the thickness of the bone separating the field of operation from the sinus is the same in both operations, half a millimeter in each case; but all the other distances, namely, from the field of operation to the facial nerve, tendon of stapedius muscle, stapes and horizontal semi-circular canal are sharply contrasted, and speak strongly in favor of the Schwartz operation.

In another preparation the chorda tympani is again seen cut by the operation. These preparations bring out another point worth mentioning, which is, that most of us are in the habit of using in children curettes which are too large and too clumsy. When one sees how small the spaces are in which he can operate safely, and how thin and soft all the bones are, it seems wonderful that so few accidents occur. Another preparation serves to emphasize the safety of the Schwartz operation, and the abundance of room in which to operate that may exist in a favorable bone, while another preparation shows in addition unusually well the chorda tympani, as it is given off from the facial nerve and passes through the tympanic cavity. This was a diseased ear during life. The membrane tympani has two calcareous deposits in it. The malleus and incus are gone, but were very likely removed in the dissecting room before the bone came into my possession, as the tegmen tympani was already gone when I got the bone. The stapes, however, is intact, and was movable, while the specimen was still moist.

In a second specimen from a diseased ear the malleus had adhe-

sions on it, the membrana tympani was partially destroyed before I made the section through the bone, which tore it still further, and the incus is gone. This preparation is an unusually good specimen of an eburnized (sclerosed) temporal bone. There is no cancellated structure and no mastoid cells; it is ivory-like bone throughout.

I have tried up to this point to show why, in cases in which there is a choice, it is better for anatomical reasons to choose Schwartz's operation: but we sometimes come upon temporal bones where, also for anatomical reasons, Schwartz's operation is impossible. This is shown in another preparation from a diseased ear; it is an example of one form of these abnormal temporal bones. There is a large perforation in the thickened membrana tympani: all the ossicles are imbedded in a firm mass of epithelium (cholesteatomatous mass) which would have been very difficult of removal in life through the meatus, and which must have impaired the hearing very materially. This is also an example of a sclerosed bone, but the most important point is that the sinus comes so far forward that there is absolutely no mastoid antrum to be found, and any attempt to perform Schwartz's operation must have laid bare the sinus as soon as the cortex of the mastoid was penetrated. In such cases as this Stacke's, or some similar operation, such as that of Hartmann, Küster, von Bergmann, and others, is the only operation possible.

In cases like the above, or those in which complications in the meatus, the tympanic cavity or the mastoid antrum (the results of diseases of the ear), make a Stacke's operation advisable, what guides, if any, do these preparations give us to the direction in which we should aim to operate? Examination of the bones seems to me to lead one to direct the opening in the posterior superior wall of the inner end of the external auditory canal strongly upward, and as soon as the bone has been penetrated to indicate the gentle use of a small bent curette still in an upward direction. By so doing, injury to the facial nerve, the stapes and semi-circular canal is most likely to be avoided, and the mastoid antrum and attic of the tympanic cavity more surely to be reached. We have as our chief danger injury to the roof of the mastoid antrum and tympanic cavity. At these points the bone is usually thin, and is sometimes partially absent, but they are further away from the point of the instrument used to clear out the diseased tissues than the other dangerous points, and are usually so much higher that they are less likely to be injured.

In conclusion, I would repeat that, wherever there is a reasonable chance, the Schwartz operation will give a satisfactory result, and where the situation of the sinus, as determined during the course of the operation, does not prevent it, Schwartz's operation rather than Stacke's should be done; where the latter is called for the operation, when removing the posterior superior portion of the inner end of the external canal should be directed sharply upward, and the probe and curette used gently, still in an upward direction, when the bone has been cut through.

In operating the smallness of the spaces in which operation can be undertaken with safety must be remembered, and small and delicate curettes used with very little force.

Dr. Gorham Bacon, of New York, said, with reference to Dr. Blake's observations of fluctuation in the temperature of one of his cases, that he had noticed the same condition in several cases operated upon last winter at the New York Eye and Ear Infirmary. In these the temperature varied from day to day, suggesting the advisability of further operation. Several consultations were held, but, after waiting a few days in each case, the patients recovered. He believed that in such cases the rise in temperature was due to absorption of pus; and that a sudden fall in temperature should not be

expected in all cases immediately after operation. When Professor Macewen was in America, in 1896, Dr. Bacon asked how it was that he had so many operations on the cranial cavity following mastoid disease, and Professor Macewen had replied that as many would be found in New York if they were looked for. Since then he had seen 20 cases of operation for brain complications due to ear disease, of which 15 were successful, and the speaker felt sure that such cases were much more frequent than was usually supposed. He concurred in what had been said in regard to the importance of exposing the lateral sinus. It was imperative in operations on the mastoid to make a very free incision through the soft parts, so as to enable the surgeon to lay bare and remove in a most thorough manner all the diseased bone. According to his experience, there was very little danger if aseptic principles were carried out in exposing the sinus and thoroughly investigating it, as well as the cranial cavity, if necessary. He had much more dread of injuring the facial nerve in such operations.

Mastoid Disease. By J. Ward Cousins, M. D., F. R. C. S., London.

Dr. Ward Cousins considered that generally acute symptoms occurring in the course of chronic disease required surgical treatment, and that in every case it was desirable to test the hearing power before the operation. The great purpose of the operation was to remove all the necrotic tissue and establish drainage, and often the removal of a large portion of the external wall of the mastoid was an excellent proceeding. In cases in which the tympanum was opened he used a small vulcanite flesh-colored tube, which the patient wore for a variable time, regulated by the favorable course of the disorder. He never operated in a case in which he considered it desirable to close the mastoid wound immediately, and after many of his operations the hearing power had been considerably improved.

Replies.

Dr. Clarence J. Blake said that the general surgical rule of removal of all inflamed tissue presumably incapable of recovery or tissue already diseased, was as applicable in the mastoid region as elsewhere. He did not consider the procedure of thoroughly evacuating the mastoid, allowing the cavity to fill with blood, and closing the external wound at all experimental. If a pus focus remained, and the blood clot broke down, the wound was reopened by a touch of the probe, and the case treated as ordinarily by packing and drainage; if not, there was the advantage of a speedy, and, as had been shown by observation of a number of these cases, a complete recovery with but few exceptions.

Dr. A. A. Buck thought that it was not a good surgical lesson to promulgate—that surgical wounds might be shut up. He preferred to leave the wound open, and to relieve all pressure.

Chronic Arytenoid Laryngitis. By Price Brown, M. D., Toronto.

In saying a few words upon this subject, I use the above title, inasmuch as it directly indicates the extent and character of the disease referred to. I know that chronic laryngitis is not usually supposed to affect the arytenoid commissure, without also affecting to a more or less extent the surrounding mucosa, particularly of the ventricular bands, ary-epiglottic folds, and the arytenoids. The experience, however, I have had in the treatment of a number of cases has satisfactorily demonstrated, to my own mind at least, that chronic laryngitis, of a persistent and severe character, confined to the commissure, does sometimes occur. This accords in some measure with Professor Chiari's third division of pachydermia laryngis; but as

this term is by the profession usually confined to diseases of the vocal processes, attended by the formation of nodes, I would request the members of this Section to tell me whether the cases I have the honor to report to-day are cases of pachydermia laryngis, or not.

CASE I.—In September, 1894, Miss B., aged 39, applied for treatment. A brother, whom she had nursed for a long time, died eighteen months previous of phthisis. She had herself been affected with throat catarrh and hoarseness for years, attended by cough and expectoration. On examination, no indications of lung disease were found. Vocal cords were coated with slightly colored catarrhal secretion. In abduction a film would stretch across the opening of the glottis, which would only give way when abduction was made complete by deep breathing. Ventricular bands and arytenoids seemed normal; but the interarytenoid commissure was grey, thickened, and corrugated, the enlargement extending to the vocal cords and preventing their complete closure during phonation.

Spray treatment relieved the catarrhal condition, but had no perceptible effect upon the commissure. I then tried brushing with a 10 per cent. solution of menthol in albolene. This was used daily for some time without perceptible effect. I next tried 10 per cent. sol. arg. nit. on alternate days, the throat being daily cleansed first with a spray of Dobell's sol., followed by a spray of menthol in albolene. The nitrate of silver, although always preceded by an application of cocain, seemed to produce soreness and hyperemia of the larynx, without reducing the pachydermic appearance. So after continuing its use for some time, I substituted 33 per cent. solution of lactic acid in its stead, brushing the commissure with it every third or fourth day. This drug gave marked relief, and was more easily borne. After using it three or four times the strength of the acid was increased to 50 per cent. The improvement was steady, and in a few weeks the chronic inflammatory thickening had entirely disappeared. The soreness had passed away and the voice resumed its normal tone. Since that time, now nearly three years, the patient has continued quite well.

CASE II.—In August, 1895, Mrs. B., aged 34, presented herself for treatment. She had been troubled with soreness of throat and harshness nearly all her life. Never had indications of specific disease. No tuberculous symptoms in herself nor any members of her family. With the exception of her throat, always healthy. On examination, no intra-nasal lesion, no adenoids, no catarrh of nasopharynx. The tonsils, however, were hyperplastic. Within the larynx there was no inflammatory or catarrhal condition except in the interarytenoid commissure. Here there was decided thickening. The mucosa had lost its natural pink color, was corrugated and grey in appearance, and was fissured in different directions. The enlarged, hypertrophied tissue extended down between the vocal cords and prevented complete closure during use of the voice. There was no swelling of the arytenoids and no tendency to the formation of nodes.

In the treatment of this case, I removed the tonsils by galvanocautery, leaving smooth surfaces between the pillars. Spray treatment was tried for some time, but ineffectually. I then resorted to brushing the larynx regularly on alternate days with 50 per cent. solution of lactic acid. The beneficial effect was marked, but very slow. One remarkable thing was the tolerance of the larynx to the drug. It produced neither pain nor spasm, although applied without the previous application of cocain. One month after commencing treatment, with the hope of more rapid improvement, I curetted the commissure. This was followed by hemorrhage, but it did not quicken the cure. For a whole year there was little change in the treatment, except that the intervals between applications were

lengthened. Two or three times I substituted 10 per cent. arg. nit. sol., but it was not borne so well as the lactic acid. During the second year, the intervals between treatment lengthened to one, and then to two weeks. The improvement was constant, and four months ago the last of the thickened mucosa disappeared, and the commissure resumed its normal appearance and pink color. The vocal cords adduct fully in phonation, and the voice is restored.

CASE III.—Mr. A. A. C., aged 40, came first for treatment four years ago. For a long time he had been a frequent sufferer from naso-pharyngeal catarrh. Sometime during that period, an over-zealous physician, either by accident or design, had removed the whole of his uvula. Whether from this cause or not, his larynx upon any sudden lowering of atmospheric temperature, would be attacked by soreness. Every winter he would have hoarseness, with hawking and expectoration, upon any sudden change occurring. Menthol and thymol sprays would usually relieve the symptoms, but gradually the interarytenoid commissure thickened, and in October, 1896, his condition became alarming. He had just returned from deer hunting in Montana, a thousand miles away, and having caught cold while travelling in a sleeper, had an attack of acute laryngitis as a consequence. This confined him to bed for a number of weeks. The subsidence of the acute symptoms left behind an enormously thickened commissure; it was grey, spongy and fissured. Dr. Shurly, of Detroit, kindly saw the case in consultation with me. Having been successful with lactic acid treatment in the former two cases, I tried it in this. I applied a 33 per cent. solution at intervals of a couple of days a number of times; it was not borne well, however; it seemed to irritate the larynx, and no apparent progress was made. This was followed by the application of glycono-tannin pigment at similar intervals with little, if any better result. At last, under cocain, I brushed the commissure with arg. nit. sol. 10 per cent., at intervals of three or four days, for a number of times. After the first treatment, the thickening commenced to become less, and in a few weeks it had almost entirely disappeared; the only thing that could be observed being a relaxed and stretched condition of the commissure. By the end of January he was well enough to leave for California for his health. He returned in May looking and feeling well, but on examining the larynx, I found there was still a little central pachydermia, and I fear that with the return of winter, there will be a recrudescence of the disease.

CASE IV.—Mrs. W. L., aged 35, soprano vocalist. Seven years ago she came for treatment for chronic hoarseness, believing that she would have to resign her position as leading singer in one of our city churches on account of it. Under treatment she recovered and retained her position. Off and on, from then until now, she has frequently required throat treatment, but she always retained her voice. Among other things, she had hypertrophied pharyngeal tonsil. Two or three years ago, after applying cocain, I removed a portion of it. The pain was more than she anticipated, and she has persistently declined to have the rest removed without I would have chloroform administered, which, so far, I have refrained from consenting to.

For nearly a year a slight commissural thickening has been forming, but this did not affect her materially until March last, when it culminated in soreness with muffled voice, but without hoarseness. On examination, I found the symptoms much the same as in the other cases. The commissural membrane was grey and swollen, and corrugated, but did not extend far enough down to interfere with the adductor muscles. The one-sided adenoid enlargement did not appear to interfere with nasal respiration, but how far it might have contributed to the condition in the larynx, I could not say.

As in the other cases, sprays alone had no effect in diminishing

the hypertrophy. Lactic acid 50 per cent. solution, also at intervals of several days, was rubbed into the commissure, but had no visible effect. Then after applying cocain, I resorted to brushing with 10 per cent. arg. nit. sol. This had a good result. The outside epithelium quickly peeled off, and a few applications at intervals of several days resulted in the entire disappearance of the commissural thickening, and of the symptoms arising from it.

In concluding this brief record of cases, I may say that microscopical sections of none of them are made; but microscopically, the appearances of all were almost identical in character. The ventricular bands, arytenoids, and epiglottis, in each were free from apparent disease. The vocal cords in the first were more catarrhal than in the others. This was the only visible distinction, as the commissural appearance in all four varied only in degree. Yet two succumbed to nitrate of silver, lactic acid being in effect useless, while the other two yielded to lactic acid, the nitrate being out of place.

I would ask the question, were these four cases pathologically alike? If so, why the difference in amenability to treatment? Or, was the first case tuberculosis? And lastly, should they be classed as instances of pachydermia laryngis?

Dr. Permewan was familiar with the class of case, but doubted whether they were all of one character. Some were tuberculosis, and some could be classed as pachydermia laryngis. He had found lactic acid the most useful astringent in these cases, whatever their nature.

Dr. Delavan also made some observations, and exhibited an electrolytic needle for use in these cases.

Dr. Price Brown, in reply thought that Dr. Delavan's suggestion of the use of the electric needle might be of excellent service, judging from its efficiency in the reduction of naso-pharyngeal fibroids. The anatomical fact that the region of the commissure was supplied more freely with muscles and glands than any other part of the larynx, and also that it was the roadway over which the ciliated epithelium carried the secretions from the larynx over into the esophagus, must be the reason why this region was so liable to thickening.

Phosphorus-Necrosis of the Temporal Bone. By H. V. Würdemann, M. D., Milwaukee, Wis.

Phosphorus-necrosis is described as a characteristic maxillary bone disease, commencing after several years contact with phosphoric fumes, occurring especially among workmen in match factories, affecting 11 to 12 per cent. of those exposed to the fumes.⁶ It very rarely affects persons with sound teeth, but occurs mainly in those whose teeth are carious; where the teeth have been extracted and the alveolar process exposed, exceptionally predisposes to the disease. The earliest case was reported⁵ in 1845, being noticed in 1839, about eleven years after the opening of match factories in Vienna. It is much less prevalent now than formerly, on account of better hygienic surroundings in the factories, improved artificial ventilation, the vaporisation of turpentine,⁶ and the rigid inspection to which the workmen are subjected. The red amorphous phos-

¹Ashhurst, *Principles and Practice of Surgery*, 1885.

²Harris, *Principles and Practice of Dentistry*, 1885.

³Keen and White, *American Text Book of Surgery*, 1892.

⁴Markoe, *Diseases of the Bone*, 1872.

⁵Ziemssen, *Cyclopedia of the Practice of Medicine*, Vol. XIX, p. 21, 1875.

⁶Salter, *Surgical Diseases Connected with the Teeth*, in Holmes's *System of Surgery*, 1870.

phorus is comparatively harmless, and is now generally used. The first symptoms are toothache, followed by pain in the jaw, swelling and tenderness of the gums, and formation of abscesses discharging fetid pus through the cheek, roof of mouth, or even the aural cavity,² leaving fistulous openings. The patient acquires a peculiar pasty appearance of the face and puffiness of the cheeks.

The usual complications are chronic bronchial catarrh, chronic gastro-enteritis, and constipation. The patients rapidly deteriorate in general health. The most rare complication is pointing of abscesses or continuation of the otitis to the bones of the external auditory canal, which, as far as I can find, is described by only one author.¹ After subsidence of the acute symptoms the bone is found to be necrosed. The disease is always chronic, and almost imperceptibly slow in the upper jaw, but in the lower is sometimes acute and attended by high fever. The lower jaw is most frequently attacked. The disease begins in the periosteum, is due to local irritation, and ends in the death of the bone. The sequestrum adheres firmly to the underlying bone, becoming encrusted with a pumice stone-like material.^{1 3 4} The disease may affect only small parts of the jaw, or even the whole bone.

The treatment advised by all authors is dietary, hygienic, and stimulant, together with tonics, antiseptic washes, and removal of the sequestrum by operation. Operations for removal of dead bone are generally very successful. Billroth cured 20 out of 23 cases.⁶ Of neglected cases, 35 to 88 per cent. die of complications and of sepsis.⁶ I beg to submit the history of the following case, in which the aural complication has proven to be the principal factor:

January 6, 1896. J. W., aged 58, American, employed in one of the principal match factories in the United States, first as a fireman in the boiler room for fourteen months, then as watchman for two years, and then as a melter of phosphoric composition and a roller-man for six weeks. His father died of apoplexy at 78; mother of epidemic influenza at 69; brother and sister in good health. Two sisters and one brother died in infancy. Claimed to have always been in good health, except diphtheria at the age of 23, and epidemic influenza five years ago. Three years ago he had painful left upper jaw, having two teeth extracted, and later had all of them removed, after which he wore a plate. He was kept from work for five weeks, felt very good, but after this noticed pain in the ear, which was referred to the mastoid region.

About January 1, 1895, he had pain in the ear, and foul muco-pus discharged. The patient lost decidedly in flesh. About this time he was struck on the left side of the head by a match composition, which covered the side of his face and filled his ear. His mouth was so sore at times that the plate could not be worn. In May, 1895, a sequestrum was removed from the upper maxilla by a dentist, after which he was little troubled.

January 1, 1896, he was sent to me for treatment of his ear. His condition was the following: Weight about 130 pounds, tall and angular, face of pasty appearance; the left alveolar process swollen and puffy, there being two fistulous openings on the buccal side and one in the roof of the mouth; examination with probe showed roughened denuded bone. The left external auditory canal was full of fetid pus. There was decided periostitis, swelling and tenderness over the mastoid region. The posterior canal of the wall was reddened and swollen, being painful to touch of probe. There were granulations at the lower portion of the membrana flaccida which covered a small perforation, the membrana tympani being apparently intact, but a perforation whistle was heard on inflation. In the right ear the membrana tympani was retracted and thickened. The temperature was 101°, and patient apparently very weak. During the week before he had had several chills, considerable head-

ache, and had been confined to bed. The patient would not submit to immediate operation, and left my office, but returned in two days, when he had a temperature of 103° and apparent septicemia, so he was immediately sent to the hospital.

Operation—Under ether narcosis, the mastoid cells and antrum were opened, the posterior and superior wall of the canal removed, the bone of the last two places being found necrosed. The mastoid cells were apparently healthy, although the antrum was filled with foul greenish pus. The wound was packed with iodoform gauze, and dressings made every second day. By the operation, the mastoid antrum, cells, the attic of the tympanum and the external auditory canal, were converted into a large cavity.

When he returned home (January 25) he had gained about ten pounds under diet and tonics. He was treated at his native city under my directions by a physician, but returned to me on June 1, 1896, having lost flesh, being reduced to 128 pounds. He had recurrence of chills and temperature; a loose sequestrum was found in the sinus back of the ear, so under narcosis, the antrum was again opened, the dead bone removed and tube inserted for drainage, which was free from the sinus through the middle ear and auditory canal. This time he remained for several months until the sinus at the back of the ear was allowed to close. He gained nearly forty pounds under hospital diet and tonics. There was rapid replacement of the posterior wall of the canal by a new growth of bone, so great that its lumen was almost closed. The company dentist at this time scraped the carious upper jaw, after which he was again able to wear his artificial teeth.

April 22, 1897, he returned for treatment, stating that he had worked for several months, but that he had great pain in the ear and head. The ear had been occasionally treated by antiseptic washes, but there was now a slight fetid discharge. It was found that the growth of the posterior wall of the canal had sclerosed and shrunken so, that the canal was now nearly of normal size. The sinus back of the ear had healed, and the discharge seemed to come from granulations near the osseous ring by the tympanic attic. There was a large perforation, and injections were easily made from the canal through the eustachian tube. The granulations were removed, and the patient treated by antiseptic injections. Patient remained here two months, again gaining in weight nearly forty pounds, and when he returned home there had been no discharge from the ear for several weeks.

August 20, 1897. After this report had been prepared for the association meeting, the patient unexpectedly returned, stating that he had worked for two weeks after leaving my care, but since that time he had again been failing in general health and lost in weight. For about six weeks there had been purulent discharge from the ear, concerning which he had written me, and had been ordered to treat the same by injections of boric acid solution. After two weeks he had considerable pain at the back of the ear, and had but little sleep. On examination, there was found purulent discharge from the middle ear, the walls of the external meatus, particularly the posterior, being swollen and tender. Dizziness was experienced from mopping out of the ear. The patient weighed but 135 pounds, had acquired a waxy appearance of his face, and complained greatly of his symptoms. There was no periostitis over the mastoid or other symptoms, except tenderness upon pressure. The patient being suspected of malingering, was sent to the hospital and carefully watched for four days. The temperature during this time was normal. Largely on account of the patient's complaints, I concluded to again open up the mastoid antrum and cells, the operation being deemed warrantable on account of the chronic suppurative disease.

Operation August 24, under ether anesthesia at the Milwaukee

Hospital: The mastoid was chiselled and drilled open, the external layer being found hard and cancellous, under which there was found a pasty mass of necrosed bone, from which exuded greenish fetid pus. The posterior wall of the canal was soft and friable, and readily removed by the spoon. It was found that the superior wall had been largely reproduced, and thereupon the triangular piece of bone between the attic and the tympanum was removed, and granulations taken away from the tympanic attic. Since that time, the wound has been dressed twice, being apparently free from pus. The patient will be expected to make a good recovery.

It may be questioned whether the temporal bone disease is of phosphoric origin. It has been shown² that abscesses of the upper jaw may discharge through sinuses in the external auditory canal or middle ear, and this may have been the starting point for the phosphorus-necrosis. The character of the maxillary disease and the patient's occupation leave no room for doubt in my mind but that the necrosis of the jaw had its origin in phosphoric absorption. Another possibility of the middle ear and mastoid affection is the fact that a mass of the phosphorus paste was by accident thrown into his ear, and was probably insufficiently removed, after which it discharged, and perforation of the drum head occurred. The character of the middle ear and mastoid disease was similar to that of the upper jaw, very chronic in its course, and yielding but slowly and incompletely to treatment, presenting a contrast to other mastoid cases.

A Case of Foreign Body (Metallic Shoe Hook) Removed from the Larynx by Thyrotomy. By Chas. H. Knight, M. D., New York.

Foreign bodies in the larynx owe their importance in the first instance, to their individual size and shape; and secondarily, to the position they may happen to assume in the laryngeal cavity. The dimensions of a foreign body are of immediate interest as regards the respiratory function of the larynx; its shape has an important practical bearing upon the method to be employed for its extraction, as well as upon the phonatory function of the larynx. An object so small as to slip through the chink of the glottis and fall into a bronchus, may be quite as serious in its ultimate results as one so large as to fill the larynx and necessitate a rapid tracheotomy. A smooth, round object of moderate size, is apt to find its way below the vocal bands, or may be disposed of by an expulsive cough. A rough or sharp-pointed body is very likely to engage itself in one of the recesses of the glottis, or to become imbedded in a projecting fold. Its removal under such circumstances is much more difficult, and is attended by greater risk of damage to the structures of the larynx.

In the management of a case of foreign body in the larynx we have to consider the age of the patient, his temperament, and the degree of local irritability. In a nervous individual, with an intolerant pharynx, the necessary manipulations are to be accomplished, if at all, with the greatest difficulty. Young children are notoriously intractable, especially when the fright associated with the accidental inspiration of a foreign body is aggravated by the view of preparations for attempting its removal. If we have time, a patient of reasonable age may be reassured, and perhaps trained to submit to the introduction of instruments into the larynx.

In some cases cocain is of great service, not only as an anesthetic, but in reducing congestion and swelling, and thus facilitating the dislodgment of an impacted body. My impression is that the value, as well as the dangers, of cocain have been overestimated. Its effects seem to be limited to the site of application; moreover, they

are sometimes annoyingly transient and variable, even in the same patient on different occasions. On the other hand, it is surprising how the exercise of patience and tact will at times establish a condition of tolerance even in a most unpromising subject. Cocain toxemia in my experience is extremely rare, although I use the drug with the utmost freedom. In former times a patient would occasionally become faint from surgical shock of an operation, or even from nervous excitement during an examination. Nowadays similar cases are erroneously attributed to cocain. I do not wish to be understood as recommending its unrestricted use, or entrusting it to patients. The latter practice seems to me especially reprehensible. In a certain portion of cases cocain fails to abolish sensation, and general anesthesia may be required. The difficulties and dangers of endo-laryngeal manipulations are vastly increased in the latter condition.

The catalogue of articles which have found their way into the upper air passages at various times is extremely voluminous. The hero of my history selected a somewhat unusual one. His case is also remarkable for the comparatively trifling disturbance the invader caused, and for the ultimately favorable result of operative interference.

"A boy, 7 years of age, was brought to me in February, 1897, with aphonia, said to be due to the presence in his larynx of a metallic shoe-hook, or fastener. The lad was in excellent general condition, and no other symptoms of any kind were presented. The father stated that the boy inhaled the foreign body five weeks previously. Immediately there was a violent attack of coughing and dyspnea, which subsided in a few moments. With the exception of the loss of voice and whistling respiration, during sleep, there was nothing to suggest that the hook had entered the larynx. A week was spent in attempts to restore the voice by means of the electric current, when the patient came under the care of Dr. J. F. Pratt, of Binghamton, New York, who promptly discovered the foreign body in the right ventricle of the larynx, near the anterior commissure. At that time an enlarged tonsil interfered very much with manipulations, and it was excised. Numerous attempts at removal, both with and without ether, as well as by means of the so called 'autoscope' of Kirstein, were unsuccessful. It became apparent that an external operation would be required, and the boy was accordingly sent to New York. A very few trials convinced me that extraction through the mouth would be impracticable; therefore, on February 13th, six weeks after the accident, ether was given preparatory to opening the larynx. Before proceeding I made a final trial of Kirstein's instrument, but without success. It would not be fair to hold the instrument responsible for my failure, which was attributable rather to my own clumsiness and lack of familiarity with it, and to a somewhat imperfect light at my disposal. Subsequent experiments with the 'autoscope' have persuaded me of its value in some cases, but have not seemed to me to substantiate the claim of its inventor. The removal of the hook was accomplished without noteworthy incident. The incision included the second ring of the trachea and the lower half of the thyroid cartilage. The foreign body could be plainly felt, and finally seen through the tracheal wound quite firmly incarcerated in the swollen tissues of the right ventricle close to the anterior commissure. It was gently loosened by means of pressure with the finger tip, care being taken to avoid unnecessary damage. The parts were replaced and held with three deep silk sutures, a trachea tube being left at the lower angle of the wound for 36 hours. The wound healed within two weeks, and the patient was discharged still aphonic, but breathing naturally and in good general condition. At this time the larynx was still hyperemic. The vocal bands did not come together well on phonation, partly, at least, in consequence

of the presence of a nodule of granulation tissue at the site of the laryngeal wound. The bands were intact. Several weeks passed without any improvement in the voice, and the parents became so anxious that they were tempted to adopt a course of local treatment which had been suggested. Fortunately, I believe, they concluded to follow the advice I had given them from the first, 'not to meddle,' and in about ten weeks after the operation the lad surprised himself by making a loud noise. He was so delighted that he kept on using his larynx, and in a very few days he regained absolute control of the organ."

This case may be looked upon as a striking demonstration of the value of expert use of the laryngoscope. Until the mirror was employed the presence of the foreign body in the larynx was not proved. Had there been any need, the situation of the object undoubtedly might have been shown by means of the fluoroscope. The result of the operation is instructive and encouraging, as an illustration of the comparative superiority of partial laryngo-fissure. My attention was first drawn to the advantage of this method by an article by D. N. Knox in the *Glasgow Medical Journal*, April, 1883. The upper segment of the thyroid cartilage not being disturbed, exact reposition of the parts is feasible. Hence, provided the mechanism of the larynx has not been irreparably damaged, there is much more favorable chance for recovery of the voice than after complete division of the cartilage. In watching the progress of this case the question has often recurred: How far is it judicious to prolong efforts at removal by the natural passages? The two objects we had in view—first, the removal of the foreign body, and, second, to preserve the voice—were accomplished, and the final result would seem to justify the course pursued under the circumstances, although it is possible that early intelligent attempts at extraction through the mouth might have been successful.

Acute Syphilitic Stenosis of the Larynx; Intubation; Recovery. By J. O'Dwyer, M. D., New York.

There is still much difference of opinion regarding the value of intubation in the various forms of acute stenosis of the larynx in adults. Several causes contribute to this, the most important of which is inexperience. Cases of this nature are comparatively rare, and for this reason the manipulative skill necessary to intubate rapidly is seldom acquired. The operation is also much more difficult in adults than in children, and asphyxia is more liable to occur from prolonged attempts at introduction, in the former than in the latter. The disastrous results following the use of children's tubes in adults, many cases of which have been reported, have also served to bring discredit on the operation in this class of cases.

The following case illustrates the relief which may be given by a tube of suitable dimensions:

"On April 11th, 1897, I received an urgent call from Dr. I. W. Zwisohn to intubate a woman, aged 40, who was reported to be in imminent danger of suffocation from obstruction in the larynx. I found the patient suffering from severe dyspnea, and immediately inserted a hard rubber adult tube of medium size, with complete relief. The first symptom of disease of the larynx had begun only three days previously with hoarseness, croupy cough and painful deglutition; on the second day the voice was lost, dyspnea was beginning, and there was complete inability to swallow anything. The patient spent the night preceding my visit sitting up in bed, and obtained no sleep, owing to the severity of the dyspnea. A deep tertiary ulcer was discovered on the posterior wall of the pharynx, and several old cicatrices existed in the same region. Severe nocturnal headaches had also been complained of for several months. Some hours after intubation Dr. W. K. Simpson made a

careful laryngoscopic examination, and reported intense swelling and redness of the arytenoids, ary-epiglottic folds, and epiglottis, without any evidence of ulceration in the parts that were visible. The swollen tissues partially overlapped the head of the tube, and secondary dyspnea from the cause was anticipated. It occurred 20 hours after intubation, and the attendant, as instructed, removed the tube by pulling on the string which was left attached for that purpose. One hour and a half later I inserted a larger tube, which gave complete relief. This tube was allowed to remain in position for ten days, after which there was no return of the obstruction.

"Owing to the patient's complete inability to swallow even a drop of water, feeding by the stomach tube was resorted to before intubation, and was continued afterward, with the addition of 15 grains of the iodide to each feeding; under this treatment the severe headaches promptly disappeared. One month after the removal of the tube there was still complete aphonia, and the vocal cords were found to be fixed in the semi-abducted position, arytenoids swollen and red. At the present writing, over four months from the first intubation, the patient is in perfect health, with only slight impairment of the voice remaining.

"The transverse diameter of the head of the tube used in the first instance was three-quarters of an inch, that of the other a little less than seven-eighths of an inch. In other words, less than one-eighth of an inch in the size of the head of the tube made all the difference between urgent dyspnea and complete relief. Had no larger tube been at hand, tracheotomy would have been required in less than 24 hours from the first intubation."

Intubation will relieve dyspnea due to any form of acute stenosis of the larynx in adults as certainly and as promptly as it does in children, provided a tube of proper size and construction can be introduced. But this is not always possible. For instance, in certain forms of phlegmonous inflammation of the throat, including the larynx, the mouth cannot be opened widely enough to permit the guiding finger to reach the epiglottis, in which case intubation should not be attempted. In very stout persons with prominent cheeks the same difficulty of reaching the epiglottis may occur, but in the latter the mirror could be used as a guide, while it would be useless in the former.

Eucain as a Local Anesthetic in the Surgery of the Throat, Nose and Ear. By W. Jobson Horne, M. A., M. B., Camb., M. R. C. P., Lond.; and Macleod Yearsley, F. R. C. S., Eng.

In a preliminary communication upon this subject, published in the *British Medical Journal* of January 16th, 1897, we described our experiences with eucain hydrochloride in relation to the surgery of the throat, nose and ear. The number of cases then recorded was 32, and, although that number was small, the results obtained and the debatable ground opened up was sufficiently encouraging to justify further research, and we now offer to the meeting of the British Medical Association the conclusions to which the investigation has so far led us. In order to do so we have taken from our notes the first hundred consecutive occasions upon which the drug was used, deeming that number sufficient to illustrate our remarks.

Before describing our further experiences, however, it will be well to recall those forming our earlier communications. After a summary of the work of Vinci, Liebreich, Berger, Charteris, Deneffe, Foster, and others, we indicated that the points on which attention should be directed were: (1) The strength of solution required; (2) the rapidity, intensity and extent of the anesthesia; (3) the general

and local action upon the circulatory system; (4) the after effects. In investigating these, other points presented themselves; the amount of hemorrhage following operation done under its influence; the question of hyperemia or ischemia as a result of its application to the turbinate bodies; and the occurrence of increased salivation from its use. These new points required further consideration, and we have paid particular attention to them, side by side with what may be called our four cardinal points, in our endeavor to decide upon the utility of eucain.

As regards the strength of the solutions, those used were 2, 5 and 8 per cent., applied by instillation (ear), swabbing (throat), and on pledgets of cotton wool (nose). These methods of application being, in our opinion, satisfactory, we have not altered them. The anesthesia we found as efficient as that of cocain. In speaking of the action of eucain upon the circulation, we stated that our investigations were not conclusive. In 3 cases unpleasant after effects were noticed; these could be fully explained by other factors present. The effects upon the pulse appeared to be *nil*, or very slight. Other observers had remarked upon the drug causing hyperemia of the turbinate bodies, and we were, consequently, somewhat surprised to find it caused ischemia, although an ischemia not comparable to that of cocain. We noted, also, that hemorrhage following operation under its influence was less than that after cocain, and never excessive. We pointed out, also, the effect of eucain upon the salivary secretion, as a phenomenon likely to detract from its usefulness in operations upon the oral cavity, but one requiring further investigation.

With the exception of the three cases already referred to, we had not noted a single instance of what might be called a toxic effect of the drug, and we found that patients who had experienced the after effects of cocain did better under eucain, and preferred it to the former drug.

Before passing to our further experiences wish to refer to the work of Hobday¹ in the clinic of the Veterinary College, which has appeared since our first communication. This observer used eucain in 40 cases, and some of his conclusions are as follows: The toxic dose of eucain is larger than that of cocain; for operations upon the cornea it compares very favorably with cocain, although anesthesia is less rapidly produced; injected subcutaneously, or applied locally to parts other than the eye, it is not by any means so good as cocain: a mixture of cocain and eucain possesses the better anesthetic properties of cocain, and can be tolerated in larger doses than cocain alone. As regards the safety limit of the subcutaneous dose of eucain he found that in the case of the cat or dog it was about one-fifth of a grain to each pound of body weight. Four grains of eucain produced toxic symptoms in a dog of 12 pounds weight, but the animal eventually recovered, whereas such a dose of cocain would certainly have caused death. In a cat in which local anesthesia was attempted by one grain of eucain in solution no toxic symptoms followed, but by a mistake a couple of days later a grain of cocain produced in the same animal toxic symptoms and death. The toxic symptoms are not noticeable so rapidly as those of cocain; hyperesthesia is present, but not to such an extent; the rectal temperature rises, salivation takes place, but is not so thin and watery as with cocain, and gulping movements are not so well marked. Similar clonic involuntary spasms take place as with cocain, but at much longer intervals, and the animal becomes prostrate; respiration is accelerated; in the cat the pupil certainly becomes widely dilated; consciousness is not lost until shortly before death, and there is not the

¹*Journ. of Com. Pathology and Therapeutics*. March 19th, 1897; *British Medical Journal Epitome*, pp. 91-92, June 5th, 1897.

same peculiar quietness and absence of moaning which is so characteristic of cocain. In one case death appeared from cardiac failure, as there were a few distinct respiratory efforts after the heart had ceased.

Post-mortem appearances show nothing very pathognomonic; if examination takes place within a short time after death the back of the pharynx, esophagus, and in some cases the stomach as well, are found full of frothy mucus, but if the post-mortem examination be delayed some hours even this will have disappeared.

Dr. J. Gibb, of Philadelphia, sums up in the *Philadelphia Polyclinic* of January 23d, 1897, his observations upon the drug as follows: (1) Eucain is equal to cocain in its anesthetic effects. (2) Eucain is nearly, if not quite, as effective as cocain in reducing engorged turbinates. (3) Eucain is superior to cocain in that it is much less likely to produce toxic symptoms. (4) Eucain is superior to cocain in that it produces far less unpleasant subjective symptoms, and especially is this true in the pharynx.

Following our previous classification, the first hundred consecutive occasions on which we have used the drug may be grouped as follows:

A. Examinations:—	
1. Ear	3
2. Laryngoscopy and posterior rhinoscopy	15
B. Operations:—	
1. Ear.	
Myringotomy	5
Furuncle	1
Aural polypi	3
Curetting	3
Eustachian catheterization	2
2. Nose.	
Galvano-cautery	20
Spurs	6
Polypi	7
Other growths	2
Turbinectomy	3
3. Throat.	
Tonsillotomy	20
Post-nasal growths	2
Galvano-cautery to granular pharyngitis	7
Endo-laryngeal operations	2
	<hr/>
	100

Not one of the several points we have investigated in endeavoring to ascertain the value of eucain can be described as settled. The question must be one for time and experience; and the present communication does not attempt to do more than lay before the meeting further clinical evidence of what uses the drug can be put to in our special branch of medicine.

THE STRENGTH OF THE SOLUTION REQUIRED.

Pure eucain is very little soluble in water, but the hydro-chloride obtainable in the form of 5-grain soloids is readily soluble in water at room temperature to the extent of 10 per cent. At first the solubility of the soloids presented some difficulty, but this has been completely overcome, and we now find the 5-grain soloids of eucain hydro-chloride the most practical form in which to obtain the drug for the preparation of fresh solutions. One of these added to 110 minims, or approximately, 2 drachms of water at room temperature, will readily give a 5 per cent. solution, or two soloids added to the same amount of water will yield a 10 per cent. solution.

Two solutions of these strengths will be found quite sufficient for the purposes we have tabulated. For the examinations referred to in the table a 4 per cent. solution was used, and as we have already remarked in our preliminary communication, a 2 per cent. solution at times is sufficient. For operations an 8 per cent. solution was found sufficient, and making allowance for the fact that the drug we then had in use did not remain in solution to the extent of more than 6 per cent., the solutions we used were hardly equivaletd to 8 per cent.; a 10 per cent solution freshly prepared in the way we have indicated, will probably be found sufficient for the performance of the operations commonly done under a local anesthetic.

Boiling we found to be in no way detrimental to the solution. It is not intended to discuss in this paper the merits of a mixture of eucain and cocain.

THE RAPIDITY, INTENSITY, AND EXTENT OF THE ANESTHESIA PRODUCED.

Before a drug can make good its claim to being an ideal local anesthetic, it must fulfil three conditions; it must be the means of reducing the patient's pain to a minimum, of increasing the operator's facilities to a maximum, and it must cause no unpleasant effects during its application or afterward. And before condemning a drug as not fulfilling these conditions, it is well to take into consideration the method of application, the temperament of the patient, and the skill of the operator. Upon the method of application of the drug will largely depend the degree of anesthesia produced, and consequently the degree of comfort afforded the patient, and the facilities to the operator. Eucain has been described by some as not such a good anesthetic as cocain; it is possible that with experience we may incline to the view that proportionately as it is less toxic it is less powerful, but at present we have found it efficient, and as this may be due to the method of application, it may not be amiss to enter into further detail on this point.

In the case of the ear, a few drops instilled and kept in contact with the part to be operated upon by inclining the head, is far more efficient than the insertion of a pledget of cotton wool saturated in even a stronger solution and placed in the meatus. It is important that the meatus should be as clean as possible; inspissated pus or dead epithelium prevents proper contact with the tissue to be anesthetized.

Now, as can be readily understood, the reverse is more efficient in the case of the nose. A spray blindly used in the nares, or however skilfully played upon the part to be treated, will not produce so uniform an anesthesia as a saturated pledget of cotton wool carefully adjusted. Speaking generally, a globular pledget introduced on forceps is not so efficacious as one spindle-shaped. A spindle-shaped pledget, an inch to an inch and a half in length, can be conveniently made by lightly wrapping absorbent wool around the tapering end of a whalebone probe, which after being dipped in an 8 per cent. solution of eucain, can be slipped into the nose so as to lie parallel with the turbinate body in its entire length, the pledget being steadied with the points of forceps while the whalebone probe is withdrawn. We find that the anesthesia thus produced is sufficient for the application of the galvano-cautery, or even to do a partial turbinectomy. To the tonsils, fauces, soft palate, or pharynx, the drug is best applied by swabbing with pledgets of cotton wool. For endo-laryngeal operations, anesthesia was obtained by dropping the drug on the part to be treated from a curved syringe.

These different applications require more care, and perhaps more trouble than general haphazard spraying, but the trouble taken is amply repaid by the anesthesia produced. Moreover, sprays involve

a waste of the drug, and in the case of cocain, are no doubt responsible for some of the toxic cases.

It will be noted that no mention is made of brushes. Brushes cannot be cleansed, and on that ground are to be condemned. By the temperament of the patient, we mean that combination of mental and physical characteristics which may aid the operator, or the reverse; and it must be within the experience of all of us to have met with patients developing toxic symptoms under cocain which could not be entirely attributed to the drug. The different effects eucain and cocain may have on the same individual we shall have occasion to revert to in discussing the after effects and the toxic properties.

ACTION UPON THE CIRCULATION.

General—After making allowance for mental influence we found that the pulse was not materially affected in either rate or character, by the solutions we had in use. So far we have not met with a case in which the drug *per se* influenced the cardiac action.

Local—It has been stated that eucain induces hyperemia, and on this account the drug is inferior to cocain, which produces an ischemia so serviceable in investigating diseases of the nose. Upon the application of a 5 or 10 per cent. solution of eucain to the mucous membrane, hyperemia will occur as an immediate result; this is in the majority of cases but an initial blush, rapidly passes off, and gives place to an ischemia, which, as seen in the nose, is generally less marked than that produced by cocain. Upon a further application, there is no recurrence of hyperemia, and the ischemia may be increased. In no case have we met with excessive or unexpected hemorrhage following operations done under eucain anesthesia, such as is not uncommonly met with after the use of cocain; this is no doubt accounted for by the action of eucain upon the peripheral vessels already alluded to.

Salivation—In our previous communication we noted the occurrence of increased salivation. We have further investigated this point, and have found that eucain in the presence of an acutely inflamed tissue (for example, acute tonsillitis, or pharyngitis, active laryngeal tuberculosis, etc.,) is followed by an increased flow of saliva; but in the presence of a diseased but not actually inflamed tissue, such as hypertrophied tonsils, etc., this effect has not been noticed. The increased flow of saliva is but initial after the first application; a further application can be made without leading to similar effects. In the absence of any better explanation it seems reasonable to associate the increased salivation with the initial hyperemia. This conclusion receives further support from an experiment made upon one of ourselves while suffering from an attack of parotitis.

One parotid gland had become infected from the adjacent submaxillary, and after the swelling had reached its height and while the parotid was subsiding, a 10 per cent. solution of eucain was applied to the tonsil and mucous membrane of the mouth on that side. This was immediately followed by throbbing and increased swelling of the inflamed gland; the tonsil was also enlarged and subacutely inflamed at the time. The throbbing and increased swelling gradually passed off, and, together with the increase of saliva, ceased by the time anesthesia was established.

This action of eucain upon the salivary glands, with exceptional cases, need not be a bar to operating under eucain anesthesia.

After-effects—As regards the disturbances of sensation following the anesthetic action of the drug, more particularly in the case of the pharynx, these are not only less unpleasant and less marked than those produced by cocain, but more transient, and, speaking generally, after the lapse of an hour from the time of application,

the subjective sensations may be described as normal. Those who have experienced the effects of both drugs, have expressed a decided preference for eucain.

Passing to a comparison of the toxic potentiality of the two drugs, we are able to supplement those cases in our preliminary paper, in which operations had to be abandoned on account of an idiosyncrasy for cocain, but had been practical under eucain, by quoting a case which came under our notice in a medical man:

A 10 per cent. solution of cocain was applied to the right naris for a galvano-cautery operation. In two minutes the patient was much excited, gesticulating and talking loud and fast; three minutes later this gave place to great depression; the pulse became weak, slow, and slightly irregular, and there was a feeling of oppression in the cardiac region. He gradually recovered on lying down, but complained of tingling and numbness in the calves of the legs, and a feeling of great weakness in the back, which lasted the remainder of the day.

Four months later an 8 per cent. solution of eucain was used for a similar purpose. The pulse remained the same in rate and character throughout. Anesthesia was sufficient for the galvano-cautery. The only after-effect noticed was "a hot taste" at the right side of the pharynx, lasting fifteen minutes.

Were eucain to be of no further service than to act as an efficient substitute in cases such as we have mentioned in which an idiosyncrasy for cocain precluded an operation, even then this new local anesthetic could not be regarded otherwise than of importance.

So far in our experience with eucain, we have not met with a case in which a single symptom supervened in the least way suggestive of a toxic effect of the drug.

On the Physiological and Pathological Relations Between the Nose and the Sexual Apparatus of Man. By John Noland Mackenzie, M. D., Baltimore.

Physiological.—That an intimate physiological relationship exists between the sexual apparatus and the nose, and especially the intra-nasal erectile tissue, is sufficiently evident from the following facts:

1.—1. In a certain proportion of women, whose nasal organs are healthy, engorgement of the nasal cavernous tissue occurs with unvarying regularity during the menstrual epoch, the swelling of the membrane subsiding with the cessation of the catamenial flow.

2. In some cases of irregular menstruation, in which the individual occasionally omits a menstrual period without external flow, at such times the nasal erectile bodies become swollen and turgid, as in the periods when all the external evidences of menstruation are present.

3. The monthly turgescence of the nasal corpora cavernosa may be bilateral or confined to one side, the swelling appearing first in one side, and then in the other, the alternation varying with the epoch.

4. The periodical erection may be inconsiderable and give rise to little or no inconvenience, or, on the other hand, the swollen bodies may occlude the nostril and awaken phenomena of a so-called reflex nature, such as coughing, sneezing, etc.

5. In some cases there seems to be a direct relationship between the periodical engorgement of the nasal erectile bodies and the phenomena referable to the head that so often accompany the consummation of the menstrual act.

6. As a natural consequence of the phenomena above described the nasal mucous membrane becomes, at such periods, more susceptible to reflex-producing impressions, and is, therefore, more easily influenced by mechanical, electrical, thermic, and chemical irritation.

7. The conditions (engorgement and increased irritability of the nasal mucous membrane) indicated above, together with the phenomena accompanying them, are also found during pregnancy at periods corresponding to those of the menstrual flow. There is also reason to believe that similar phenomena occur during lactation and the menopause.

II.—*The Presence of Vicarious Nasal Menstruation.* (a) It is a familiar fact that women are occasionally found in whom the menstrual function is heralded or established by a discharge of blood from the nostrils. This hemorrhage, which may be accompanied by other phenomena referable to the nose, such as sneezing, etc., may be replaced afterward by the uterine flow, but sometimes continues throughout the menstrual life of the individual. In the latter case, some malformation or derangement of the sexual apparatus seems to be usually, though not always, responsible for the nasal flow.

(b) Epistaxis also occurs, now and then, from the suppression of the normal flux. This was considered as a favorable sign by Hippocrates, and by Celsus, who followed closely in his footsteps.

(c) Hemorrhage from the nose may occur as the vicarious representative of menstruation during pregnancy; toward the close of menstrual life, as the premature or normal herald of the menopause; or it may be observed as a recurring phenomenon after the establishment of the change of life, or after the removal of the uterus and its appendages.

(d) These vicarious hemorrhages are, moreover, not confined to women, but make their appearance not infrequently in boys at or near the age of puberty, or upon the full development of their sexual powers.

III.—The well known sympathy between the erectile portions of the generative tract and other erectile structures of the body must be remembered. There is no reason why the sexual excitement that leads to congestion and erection of these organs, as, for example, in the case of the nipple, may not, under similar circumstances, cause engorgement of the nasal erectile spaces.

IV.—The occasional dependence of phenomena referable to the nose during sexual excitement (such as, for example, epistaxis, stoppage of the nostrils, sneezing, and other reflex acts), either from the operation of a physiological process (erythsm) or during the consummation of the copulative act.

V.—The reciprocal relationship between the genital organs and the nasal apparatus, is furthermore illustrated by the occasional dependence of genito-urinary irritation upon affections of the nasal passages. Retarded sexual development, too, may possibly depend upon the coexistence of nasal defect.

VI.—It is finally quite possible that irritation and congestion of the nasal mucous membrane precede, or are the excitants of the olfactory impression that forms the connecting link between the sense of smell and erethism of the reproductive organs exhibited in the lower animals, and in those individuals whose amorous propensities are aroused by certain odors that emanate from the person of the opposite sex.

These facts point conclusively to an intimate physiological association between the nasal and reproductive apparatus, which may be partially explicable on the theory of reflex or correlated action, partially by the bond of sympathy which exists between the various erectile structures of the body. That a relationship exists by virtue of which irritation of the one reacts upon the circulation and possibly nutrition of the other, is accordingly rendered highly probable by the evidence of clinical observation. If this excitement be carried beyond its physiological limits, then comes a time, sooner or later, when that which is a normal process becomes translated into a pathological state, according to a well known law of the economy.

Hence it is a *priori* conceivable and eminently probable, not only that stimulation of the generative organs, when carried to an excess, may become an etiological factor in the production of congestion and transient inflammation of the nasal passages, and especially of their cavernous tissue, but that repeated and prolonged abuse of the function of these organs may, by constant irritative influence on the turbinated tissue, become the starting point of chronic changes in that structure.

Pathological—The following data derived from personal clinical observation may possibly throw some light upon the subject:

1.—1. In a fair proportion of women suffering from nasal affections, the disease is greatly aggravated during the menstrual epoch, or when under the influence of sexual excitement.

2. Cases are also met with in which congestion or inflammatory conditions of the nasal passages make their appearance only at the menstrual period, or, at least, are only sufficiently annoying at that time to call for medical attention.

3. Occasionally the discharge from a nasal catarrh will become offensive at the menstrual epoch, losing its disagreeable odor during the decline of the ovarian disturbance. In many cases of ozena the odor is much more pronounced at times corresponding to those of the menstrual flow.

4. Excessive indulgence in venery seems to have a tendency to initiate inflammation of the nasal mucous membrane, or to aggravate existing disease of that structure. There are those, for example, who suffer from coryza after a night's indulgence in venereal excesses, and the common catarrhal affections of the nose are sometimes undoubtedly exaggerated by repeated and unnatural coition.

5. The same is true in regard to the confirmed habit of masturbation. The victims of this vice in its latter stages are constantly subject to nose-bleed, watery or mucous discharge from the nostrils and perversion of the olfactory sense.

6. The coexistence of uterine or ovarian disease exerts, sometimes, an important influence on the clinical history of nasal disease. This fact has been shown in practice in cases in which the nasal affection has resisted stubbornly all treatment, and in which it has only been relieved upon the recognition and appropriate treatment of disease of the generative apparatus. The recent researches of Fliess seem to indicate that the converse of this proposition is true.

These observations, therefore, encourage the belief, if they do not establish the fact, that the natural stimulation of the reproductive apparatus, as in coitus, menstruation, etc., when carried beyond its normal physiological limits, or pathological states of the sexual apparatus, as in certain diseased conditions, or as the result of their overstimulation from venereal excess, masturbation, etc., are often the predisposing, and occasionally the exciting causes of nasal congestion and inflammation and perversion of the sense of olfaction. Whether this occurs through reflex action pure and simple, or as the sequel of an excitation in which several or all of the erectile structures of the body participate, the starting point of the nasal disease is in all probability the repeated stimulation and congestion of the turbinated erectile tissue of the nose. It is highly probable that this erectile area or organ, so sensitive to reflex-producing impressions, is the correlative of similar vascular areas in the reproductive tract, and that the phenomena observed may, therefore, be explained by the doctrine of what we may call, for want of a better name, reflex correlated action.

Mr. Lemmox Browne said that some courage was needed to bring forward such a subject with the thoroughness with which Dr. Mackenzie had treated it; and he felt sure that all would agree in congratulating the author. The interesting aural observations of Dr. Clarence Blake might be equally well applied to the larynx. Mr.

Browne believed that irritation of the sexual organs was just as frequently—probably more so—a reflex from the nose as the converse, and he related a case in which masturbation in a child of only 4 years of age was promptly cured after removal of adenoids; somewhat analogous results had been freely reported by others in connection with nocturnal enuresis.

Dr. Bryson Delavan had seen a case similar to the one reported by Mr. Lennox Browne, in which habitual masturbation in a girl aged 6, was immediately permanently cured by the removal of an adenoid thickening at the base of the pharynx.

Dr. Clarence J. Blake said that an illustration of the points made by Dr. Mackenzie was to be found also in the cases of slowly progressive impairment of hearing occurring in young and middle-aged women, and due to tissue changes in the region of the stapes, consequent upon a suspense of vaso-motor inhibition, and resulting in a greater or less degree of stapes fixation, with corresponding deafness and circulatory tinnitus. The occurrence, in a large number of these cases, of a circumscribed congestion of the stapedal region in otherwise normal ears, at the menstrual period, and particularly in cases of dysmenorrhea or under the influence of fatigue and nervous overstrain, justified the inference of reflex causation, and a reference of the cases to the gynecologist showed that in nearly 80 per cent. there was some form of pelvic disturbance, usually a malposition of the uterus with erosion of the os.

Non-Operative Treatment of Chronic Suppurative Disease of the Antrum and Vault of the Tympanum. By Albert H. Buck, M. D., New York.

Recent otological literature is full of treatises which deal with the subject of new operative methods for the cure of chronic suppurative processes in the vaults of the tympanum and the mastoid antrum. Of these operations ossiculectomy (for those cases in which the disease is limited to a small area within the tympanum) and the so-called Stacke's operation (for those in which the antrum is also involved), are the two representative types. Both of these operations have passed the probationary stage, and are now generally accepted by otologists as safe and effective surgical procedures for the cure of the pathological conditions referred to above. Conceding, therefore, as I do the value and the safety of these operations I am, nevertheless, disposed to believe that they are resorted to in many cases in which the simpler cleansing methods would be found to be quite as effective in curing the disease.

I should, perhaps, qualify this remark by stating that it has reference mainly to cases which are seen in private practice. In the treatment of infirmity patients it is not often possible, in large cities, to devote at least half an hour twice or three times a week to a single case; and, furthermore, our experience in New York has shown that infirmity patients cannot be depended upon to attend the institution regularly for treatment. But, unless these cleansing procedures are carried out in a minute and painstaking fashion, and at rather frequent intervals (two or three times a week), at best only a temporary amelioration of the disease will be secured. I am satisfied, therefore, that in dealing with this class of patients the otologist is quite right in urging the operative rather than the non-operative mode of treatment.

In private practice, however, the conditions are quite different. The surgeon can give to this class of cases all the time that may be required, and the patients themselves can be depended upon to be regular in their attendance. Then, again, many private patients object strongly to being subjected to an operation which requires the use of ether or chloroform as an anesthetic, and may keep them confined to the bed or to the house for several days.

It is not in every case, however, be it clearly understood, that we can safely offer this choice to a patient. Symptoms may have already developed which point to an extension of the disease to important neighboring organs, and in that case we must recommend strongly the more radical plan of treatment by operation—either Stacke's or the regular mastoid operation. But in most, if not all, of the cases in which a simple ossiculectomy is performed, and in quite a large proportion of those operated upon by Stacke's method, no such threatening symptoms exist, and consequently we are at liberty to deal with the problem before us in a more leisurely manner. If, in such cases, the opening in the tympanic membrane, through which the pus and other products of the disease escape into the external auditory canal, is fairly large—say two or three millimeters in diameter—and particularly if it occupies a high position, there can be no question about the propriety of giving the cleansing method a fair trial. On the other hand, if the opening is small—perhaps not more than a millimeter in diameter—or if it occupies a low position, the simple cleansing method is more likely to fail. But even here a limited myringectomy may suffice to overcome this drawback, and so place these cases on a par with the others. If the pus, however, finds an outbreak through the membrana flaccida, it is better to proceed at once to an ossiculectomy (including, of course, a myringectomy). The necessity for a Stacke's operation (or for a mastoid operation) in this class of non-urgent cases becomes clear when both the cleansing method and a simple ossiculectomy (including the anvil as well as the hammer) have proved successful in arresting the foul-smelling discharge.

As regards the details of the cleansing method, it is enough to state here that it consists essentially of only two steps: (1) The removal, chiefly by mechanical means, of all granulation tissue, cast-off epithelium and detritus from the diseased tympanic cavity of antrum; and (2) the destruction, by chemical means, of all pathogenic germs. Injections of hydrogen dioxide, through variously curved glass tubes, play a very important part in the procedure, not simply on account of the germicidal action of this fluid, but largely because the active effervescence which at once takes place when it comes in contact with decomposing organic material, aids in dislodging the obstructing substances. When once the cavity has been cleared of all these and rendered aseptic, powdered iodoform, or one of the more recent antiseptic powders (euphen, aristol, etc.), shall be introduced in liberal quantity and allowed to remain there indefinitely. This, in brief, is the mode of treatment which I have termed the cleansing method.

In conclusion, permit me to bear further testimony to the beneficial results which are obtained from the faithful and persistent employment of this method. I believe that I do not exaggerate when I say that in a decided majority of the cases treated in this manner the results have been successful; and I base this belief, not simply upon my own personal experience, but also upon that of other otologists with whom I have had an opportunity to compare notes.

NOTICES OF NEW BOOKS.

An American Text Book of Diseases of the Eye, Ear, Nose and Throat.

W. B. Saunders, 925 Walnut street, Philadelphia, has now in preparation *An American Text Book of Diseases of the Eye, Ear, Nose and Throat*, edited by G. E. de Schweinitz, M. D., and B. Alexander Randall, M. D. This will be uniform with the other American text books already published by this house, and as it promises to become a volume of eleven hundred pages, fully illustrated, and printed with the excellence characteristic of the others, it cannot fail to meet the approval of all interested.

Electricity in Diseases of the Nose, Throat and Ear.

Messrs. G. P. Putnam's Sons, New York and London, are now engaged in publishing the new work of Dr. W. Scheppegrell on "*Electricity in Diseases of the Nose, Throat and Ear.*" Electricity in its various forms is now so extensively used in medicine that this, which is the first work on the subject referred to in the title, will probably be a valuable production, and its publication is awaited with much interest.

NOTES AND ANNOUNCEMENTS.

Dr. O. Seifert has been made Professor at the University of Wuerzburg.

Dr. C. Delstanche has been elected president of the Royal Society of Medical and Natural Sciences at Brussels.

F. Spicer, M. D. (Dublin), has been appointed surgeon to the Metropolitan Hospital for Diseases of the Throat.

Dr. E. Hoffman, private docent of otology and surgery at the University of Greifswald, has received the title of Professor.

H. B. Robinson, M. S., F. R. C. S., has been appointed surgeon to the throat department of St. Thomas' Hospital at London.

L'Archivo Italiano di Otologia announces the death, at the age of 74 years, of Dr. Bianco, specialist to the Deaf Mute Institute at Turin.

Dr. E. Schmiegelow has been appointed director of the newly-created clinic for throat and ear diseases at the University of Copenhagen.

Dr. B. Fraenkel, the Director of the Laryngological Clinic of the Berlin Charite Hospital, has been made Honorary Professor Ordinary at the University.

A monthly special journal, *La Oto.-Rhino.-Laryngologia Espanola*, is now published at Madrid, under the editorship of Dr. Rafael Forns, director of the National Institute for Deaf Mutes.

P. MacLeod Yearsley, F. R. C. S., and Richard Lake, F. R. C. S., have been appointed assistant surgeons to the Royal Ear Hospital, Frith street, Soho, London.—(*London Journal of Laryngology, etc.*)

The second Spanish Congress of Oto.-Rhino.-Laryngology meets

at Barcelona, September 18-20, 1898. Persons desirous of participating should address the general secretary, Dr. Masip, Pelayo 58, Barcelona.

The Western Ophthalmological, Otological, Laryngological and Rhinological Association will hold its next meeting at Chicago in April, 1898. The program, which is said to be most promising, has not as yet been officially announced.

L'Archivo Italiano di Otologia, Rhinologia e Laryngologia, founded by de Rossi and Gradenigo, will, with the beginning of the seventh year, January 1, 1898, be edited by Professor Gradenigo and Professor Gh. Ferreri, of Rome, assisted by an able corps of collaborators.

Dr. Schmiegelow, of Copenhagen, informs the *Internationales Centralblatt für Laryngologie*, that if the place designated for the monument of Wilhelm Meyer is ready, the dedication will take place during the summer; otherwise, it must be postponed to next year.

The title of Professor has been conferred on the private docents at the University of Berlin, Dr. L. Jacobson, who has just published a second edition of his textbook of otology, and Dr. Benno Baginsky, whose dispensary for ear and throat diseases is well known to Americans.

The Italian Society of Laryngology, Otology and Rhinology will hold its third biennial meeting at Rome, October 28-30, 1898. The program consists of the address of the president, Prof. Grazzi, 46 papers and the following reports:

1. G. Ferreri (Rome): On the Value of Autopsy in the Diagnosis and Treatment of Laryngeal Affections.
 2. Gradenigo (Turin): Adenoid Vegetations.
 3. Masini (Genes): The Physiology of the Middle Ear.
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In the February number of *Pædiatrics* there appeared a noteworthy review of the life and character of the late lamented Dr. O'Dwyer, by Dr. A. Jacobi, of New York. He refers to the discovery and history of Intubation as follows:

From 1880 to 1885 he thought, experimented, labored, and improved incessantly. Not being acquainted with the previous attempts by Dessault, Dieffenbach, Horace Green, and Loiseau, at reaching the larynx and trachea, and with the ill received and rejected "tubage" of Bouchut as far back as 1858, he had to find his own way, often discouraged, but always hopeful. His first reports, in 1885, covered the results obtained in fifty-five acute cases; but at

that early time he suggested what afterward proved true. That intubation offered the best chance of success in the treatment of many chronic stenoses. Indeed, at the international congresses of Washington and of Berlin, he could present successful cases of intubation performed both in acute and in chronic laryngeal obstructions. A case of "congenital stenosis of the larynx" was reported by him to the American Paediatric Society, at Washington, May 4, 1897. It appeared after his death in the January number of the *Archives of Pediatrics*, 1898.

His first publications on intubation of the larynx in croup saw the light in the *New York Medical Journal* of 1885. They were followed by others in the *New York Medical Record* in 1886. But it was only at and since the meeting of the Medical Society of the State of New York in 1887, that his labors were appreciated at their full value. Shortly after, the stated meeting of the New York Academy of Medicine of June 2, 1887, was arranged for the reading of papers on intubation in croup by Dr. O'Dwyer and others who had ample experience with it. They were accompanied with an array of many hundreds of well-observed cases, and established the claim of intubation as "one of the great advances of medical discoveries." The president of the academy could at that time predict for O'Dwyer's procedure a safe permanency, and for him everlasting fame.

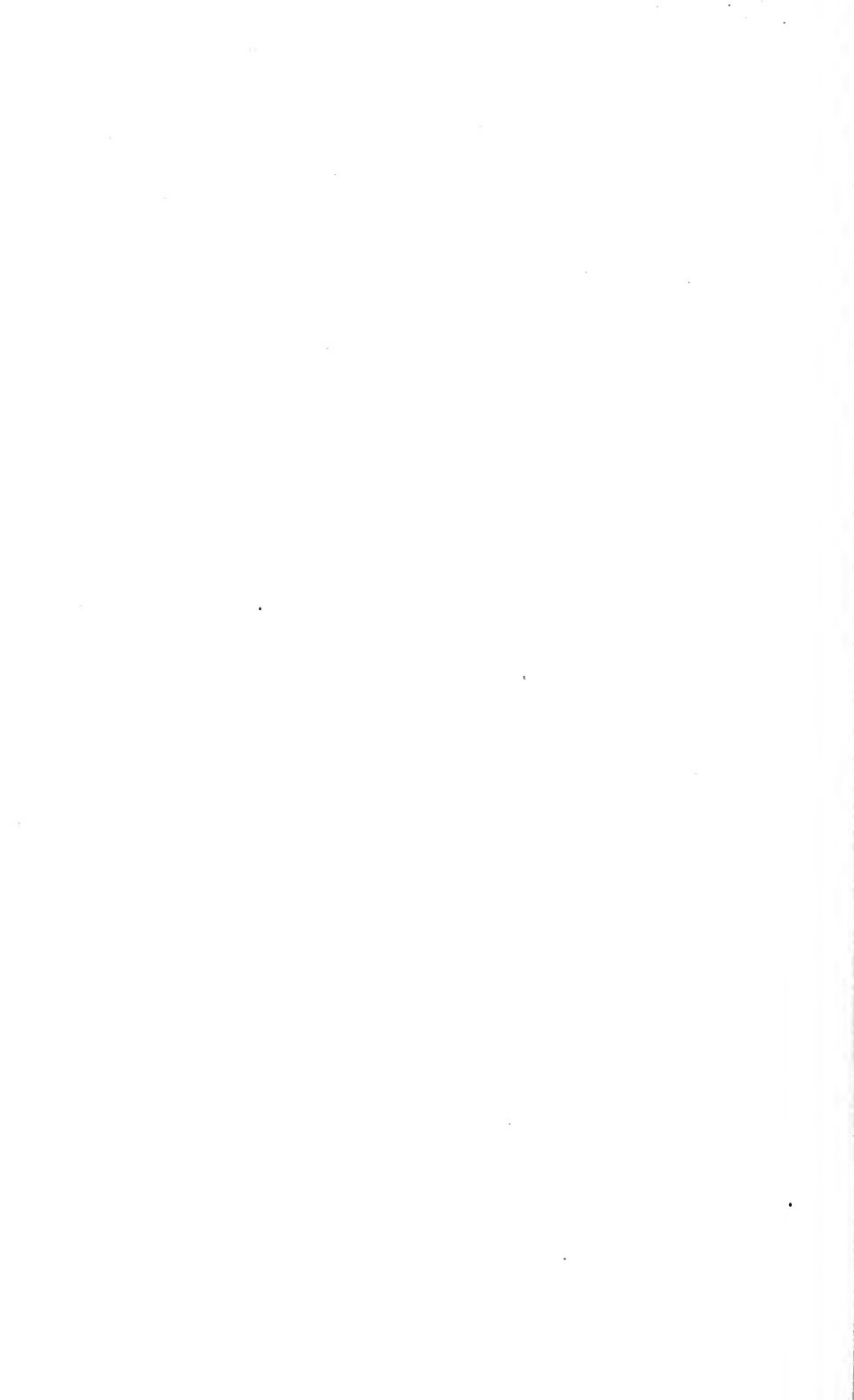
This prophecy has come true. After some hesitation in many foreign countries intubation has conquered its place to such an extent that tracheotomy in croup is, at present, rarely performed. Among the many good and true medical men who have earned a national and international reputation there is none in modern times whose name will more certainly be forever connected with the history of the art of healing croup than that of O'Dwyer. He never claimed a position as a universal scientist of high rank or as a great public teacher, but he set his sympathetic heart and his ingenious brain to work upon the task of saving suffocating infants and children—and succeeded. Indeed, nobody's labor and teaching have been so instrumental in saving thousands from imminent death as those of O'Dwyer's. It is safe to say that no American name has been so often and so approvingly quoted in the recent medical literature of the world as his. More: Whenever the records of diphtheria are written up, there will be four names at the head of those who deserve the places of honor, Bretonneau, Trousseau, Behring, and O'Dwyer. They have scattered much of the terror inspired by the very name of diphtheria. No disregard of historical studies, too common among us, will ever efface the name of Joseph O'Dwyer from the memory of medical men all over the world. It will be one of those of whom Americans will have reason to be most proud.

"Is life worth living?" That question has often been asked, and has been answered in different ways. It is true, individual life is of some value to somebody, if only to the possessor. In a broader sense, and in the intellectual world, only those lives should be considered worth living that prove to be of universal benefit and are apt to

teach lessons. O'Dwyer's life and work are apt to teach two lessons.

To him renown came, though he never claimed all his lifetime to be anything but a general practitioner. He never thought of raising the flag of any specialism either for the sake of money or of repute. The latter came through his work, which was earnest, enthusiastic, and persistent. Never was a man more so, nor more modest, unassuming, even retiring.

He worked many years in silence, if not in secrecy, before daring or consenting to make public either his labors or his success; when he finally spoke, fame came to him such as any man may covet. Let those who rush into print before they have anything to say, and are disappointed when they never attain undeserved celebrity, heed his example. Fleeting notoriety may be snatched by push and clamor; permanent glory is attained only by earnest, honest, modest labor, such as O'Dwyer's.



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CONTRIBUTION TO THE IMPORTANCE OF LARYNGOSCOPY AND OF THE APPLI- CATION OF ROENTGEN RAYS IN CASES OF AORTIC ANEURISMS.

BY DR. JOHN SENDZIAK,

WARSAW, POLAND.

“Lähmung des linken Recurrens ist fast immer das früheste und bleibt oft lange Zeit das einzige Anzeichen.”

So expresses himself Prof. M. Schmidt, (1) in regard to aneurism of the aorta—one of the best specialists for diseases of the larynx, likewise an excellent general physician. The identical opinion is also expressed by other celebrated authors, among others by Prof. Sir Felix Semon (2).

It may *a priori* be proper to direct our attention to the anatomical relations existing between the left recurrent nerve on one hand and the aortic arch on the other. It is sufficient to remember from the anatomy that the left recurrent nerve is situated under the aortic arch (from the front backward and above, running through between the aorta and the left bronchus,) in order to understand that aneurisms which spring from the aortic arch, which takes place in almost 86 per cent., especially exert pressure upon this nerve.

But not only theoretical considerations make the above opinion a very probable one, the clinical experiences confirm this fact.

So, for instance, Dr. Havilland Hall, author of a very valuable paper on the relation of the diseases of the upper air passages to the general disturbances of the organism, (3) observed out of sixteen cases of aneurisms of the aorta partial or total paralysis of the left recurrent nerve not less than fourteen times. It is, therefore, not surprising that on the basis of above figures this author affirms that the "positio cadaverica" of the left vocal cord, especially in men between 30 and 60 years, should above all arouse the suspicion of aneurism. In general I succeeded till now in collecting more than seventy cases from literature of aneurisms of the aorta, in which this symptom, *i. e.*, partial or complete paralysis of the recurrent nerve was noted.*

These are the cases of Havilland Hall (14 cases), Simanowski 4 (6 cases) Schech 5, (5 cases, of which three very probable,) Löri 6, (also 5), Newman 7, (4 cases), Beau 8, (3 cases), Felici 9, (also 3), Thuc 10, Pleskoff 11, Schaeffer 12, and Friedreich 13, (2 cases each); finally, Chiari 14, Brondgenest 15, Carter 16, Hertel 17, Steven 18, True 19, Beschorrer 20, Mulhall 21, Findlayson 22, Hahn 23, Perry and Newman 24, Oster 25, Schroetter 26, Renzi 27, Kee 28, Mader 29, Anderson 30, Porter 31, Elliot 32, Aronsohn 33, finally Williams 34, and Krieg 35.

To these cases I can add my own six (of which two are probable) which I, of the general number 8, had occasion to observe lately.

In these cases there could be remarked above all the fact, which has roused the attention of Havilland Hall, and which he considers almost as pathognomonic for aneurisms of the aorta, *i. e.*, of recurrent paralysis, that always the patients were men, although I have observed this disorder twice in women.

Further, the age of these patients was really from 30 to 60 years, as the same author remarked. Only in one of the cases, and likewise in one of Newman's, the patient was a littler older—68 years.

The statement of the above author, however, regarding the exclusive affection of the left recurrent. is not quite

*In these cases I do not include those in which no laryngoscopic examination "intra vitam" took place. These are cases of Fortmet (36), Bernheim and Semon (22). Matthieu (38), finally Smith (39)

right. Without doubt, paralysis of the latter in consequence of the pressure of aneurism of the aorta, happens more frequently. That is quite evident after what I have already stated above on the anatomical relations of this region.

In 54 out of 77 cases, *i. e.*, in more than two-thirds, paralysis of the left recurrent nerve was noted. There are, however, the right-sided affections of the recurrent (10 cases.) These are cases of Thuc, Newmann, Finlayson, Mader, LÖri and myself.

As regards myself, I have even relatively very often (in half of my cases, *i. e.*, 3 times), observed affection of the right recurrent, LÖri and Hall appears 3 cases out of 5.

At any rate, this is quite accidental, as well as the fact that in all fourteen cases of Havilland Hall, the left vocal cord was paralyzed. How is this, doubtless, rare affection of the right recurrent to be explained? In a simple manner again, by the anatomical relation: the right recurrent is situated farther from the aortic arch than the left.

The pressure upon this nerve is generally caused by aneurism of the subclavian artery, which, however, occurs very seldom alone.

Mostly, the paralysis of the inferior laryngeal nerve is not complete, *i. e.*, we have to do with affections of the abductors (mm. crico-arytenoidei postici) with the so-called "Posticus Lähmung"; more rarely with complete affection of this nerve. The first shows itself on laryngoscopic examination in the shape of the phonatory, or median position of the affected vocal cord. In case of unilateral paralysis of posticus, there are no symptoms at all (hoarseness, etc.), on the contrary, in cases of bilateral "Posticus Lähmung," stenotic symptoms generally appear, (case of Carter, etc.)

Complete ¶paralysis of the recurrent, which generally is the later stage of the "Posticus Lähmung,"* distinguishes itself † by the cadaveric and position of the vocal cords, *i. e.*, midway between respiratory and pho-

*On the basis of the well known Semon law, according to which every organic progressive disease of the nervous system—central, as well as peripheric origin, first and usually the abductors are subjected to the paralysis.

natory, then in cases of unilateral as well as bilateral paralysis of the recurrent—there is the only one constant symptom, *i. e.*, paresis.

Besides the above unilateral, there exist, although rare, observations, of bilateral, partial or complete paralysis of the vocal cords, (8 cases.) These are the cases of Mulhall, Havilland Hall, Carter, Beschorner, Perry and Newman, Felici, and two cases of Löri. Generally, there is, then, bilateral paralysis of posticus, more seldom, as it takes place in the case of Perry and Newmann there is “Posticus Lähmung” on the one side, and complete recurrent paralysis on the other.

These cases we can explain in a different manner, by the considerable dimensions of the aneurism itself, (in one of Felici’s cases) or simultaneous existence of two aneurisms, *i. e.* of aorta and of subelavian artery, as for instance, took place in the cases of Chiari 40, and Kroenlein 41. Finally, some authors, Havilland Hall, Carter, Beschorner, and Perry and Newman, believe in the possibility of bilateral affections of the vocal cords in case of pressure only on the one nerve (vagus). In these cases we would suppose the existence of centrifugal fibres in the vagus nerve, by means of which the peripheral irritation is transmitted to the medullary center, (N. accessorius Willisii) producing bilateral motor disturbances in the larynx. It is then simply a reflex paralysis, which makes the essence of the hypothesis of G. Johnston, which, however, till now, is not absolutely confirmed.

There is no doubt whatever that the paralysis of vocal cords in shape of their phonatory, or cadaveric position, *i. e.*, the partial or complete paralysis of the superior laryngeal nerve, (recurrent) happens in cases of aneurisms of the aorta very often, especially on the left side.

This symptom, having only a secondary diagnostic value in cases of the so-called classical aneurisms of aorta, where there exist the so-called triad, pulsatio, strepitus on the sternum, mattitas,, will have a most important significance in cases of latent aneurisms of the aorta where the above symptoms are absent.

In Newman’s cases the only symptom which speaks in favor of possible aneurism of aorta is the irregularity

of the pulse. In the several cases of Havilland Hall the only symptom which forced the patient to seek medical help was hoarseness.

A quite analogous case, which undoubtedly confirms the importance of laryngoscopic examination in cases of aneurism of aorta, I had occasion to observe lately. A patient, 45 years of age, from the country, came to me on the 6th of February, 1898, complaining of hoarseness, lasting two months. The whole treatment, until now, applied by the local physician, who considered, as it seems, the character of this disease inflammation, as for instance, inhalations, compresses, etc., proved quite inefficacious, the hoarseness gradually increased, the patient experienced greater difficulty in speaking, became exhausted quickly, which naturally irritated the patient very much; the more so as on account of his occupation (he is a notary), the hoarseness is a great trouble to him. Besides that, he is healthy, does not feel any pains, no cough in general; except a nervousness, of which the wife of the patient present during the examination told me, he does not feel any disturbances. From childhood he is weak, and as it seems, very scrofulous. Except some affection of the lungs (pleuropneumonia) in his sixth year of age, likewise icterus at 23, did not suffer from any disease, abuses tobacco. No syphilis. He comes, it seems, from a healthy family, although his father in his 65th year, died suddenly (apoplexy, aneurism), the mother of cholera, the brothers and sisters died in childhood, mostly also from cholera. Married, his wife is healthy, and has five healthy children.

On the first examination with the laryngoscopic mirror, I had no doubt that here any inflammatory process was out of the question, the vocal cords being quite unchanged, likewise the mucous membrane of the rest of the larynx does not show any inflammatory traces.

But only the left vocal cord is absolutely immobile during respiration, as well as phonation. It is excavated on its free edge, considerably shortened in comparison with the right, so that the left arytenoid cartilage is situated more to the front than the right; in a word, we have to do with the position of the vocal cord which we generally see in the cadaver, although not quite so, as shown by Semon, the glottis being from 2 to 6 mm. wide.

There was then no doubt at all, that in this case we had to do with typical complete paralysis of the left recurrent, the excavation and shortness of the affected cord, characteristic besides the cadaveric position for this disorder, depends on the secondary affection of the adductors, especially Mm. thyro-arytenoidei Int., which first and mostly are subjected to the disturbance (Semon).

Besides that, except chronic catarrh of the nose and naso-pharynx, as well as secondary catarrh of the middle ear, we could not find anything in the upper air passages. Of what origin could this paralysis of the left recurrent be is the question which presented itself above all. It could be either of central origin, *i. e.*, on account of some organic disease, (not functional, because in cases of this latter, as Semon proved, only adductors, never abductors, are subject to paralysis) in the nervous centers, which at the first moment seemed to be very probable on account 1, of the uncommon nervousness of the patient, to which his wife drew my attention; 2, of a very distinct trembling of the hands, which I remarked in the patient during my first examination.

Besides this central origin, the paralysis of nervus recurrens, especially as in this case of the left, gave me the idea of another, namely, peripheral cause, *i. e.*, the pressure on the recurrent, and then mostly on account of aneurism of the aorta, tumors of the mediastinum being much rarer.

On account of this, for exact explanation of this case, I invited for consultation Dr. Edward Zielinski, and we found together what follows. The patient of almost miserable constitution and nutrition. The most minute examination of the nervous system shows absolutely no indications as to organic disease of the centers, neither in sensory nor in motor sphere, was there any disturbance. A distinct functional disturbance (neurasthenia), however, was discovered. Examination of the internal organs, namely, those in the thoracic cavity did not present any positive facts either. In the superior part on the left side the respiration was perhaps a little slower in comparison with the right side. The notes of the heart clear; accentuation of the second note of aorta. Besides that, arterio-

sclerosis. In the first moment it seemed to us that the pulse on the left side was a little weaker, but afterward it was proved that this symptom was not constant, but depended upon the state of nervous irritation during the examination.

In spite of the facts which we found during the subjective examination, in view before us of the existence of paralysis of the left recurrent, after exclusion of organic central disease, as well as tumors of mediastinum, we came to the conclusion that, most probably, we had to do with aneurism of the aortic arch, which pressing upon the superior laryngeal nerve produced in our patient one symptom only, *i. e.*, hoarseness. The slight slowing of the respiration on the left side of the thoracic cavity depended probably on the pressure of this aneurism upon the left recurrent.

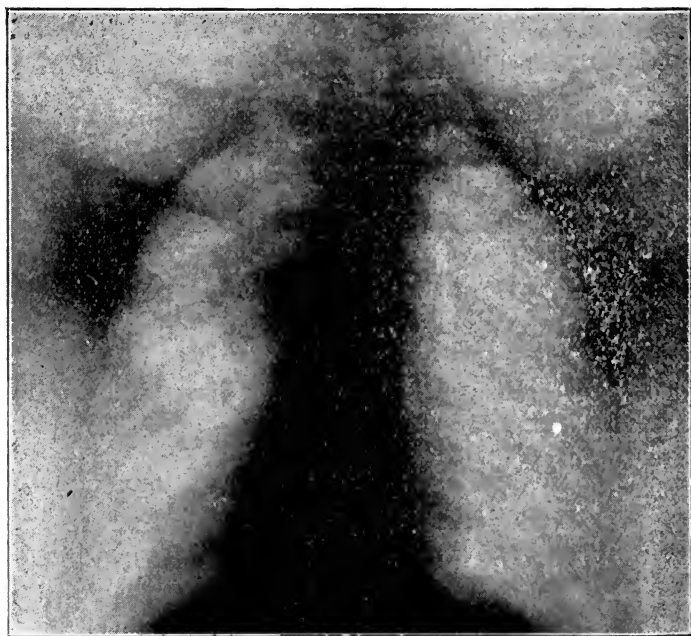
It was, however, necessary to change this supposition as soon as possible to assurance.

For this purpose, based upon some cases of aneurisms of the aorta, which were discovered thanks to the Roentgen rays, we resolved also in this case to apply this method, and Dr. Bychowski, who examined the former cases so successfully, applied in the presence of Dr. Edward Zielinski and myself the transillumination with X-rays. There could be plainly seen on the left side above the heart a pulsating tumor, under which shape the aneurism of the aorta presented itself. These relations are seen very distinctly on the photograph, which was afterward taken of the patient. You see here distinctly above the contour of the heart the aorta the left side of which presents itself as a greatly convex tumor. The dark surface below the heart shows the lines. The three small rings shown in the photograph represent the buttons of the shirt in which the patient was photographed. The exposition was made from behind.

Thus, there was no doubt at all that we had in this case to do with a typical aneurism of the aorta arch, and that the paralysis of the left recurrent was of peripheral origin, due to pressure of the aneurism upon this nerve. In this sense we applied the treatment, namely, *kali iodatum* internally in gradually increased doses (from 0.35

to 1.0 grms. per day up to 2.0 grms. per day) Besides that baths with a gradually diminished temperature (from 29° to 24° R.), further avoiding all physical exhaustion, likewise excitation of psychical nature; on the paralyzed vocal band externally, electricity, faradism and massage by means of the electro-motor.

In the first days of the treatment the patient had an attack of paratyphlitis which, however, luckily passed away after several days suitable treatment under Dr. Edward Zielinski. Under the influence of iodide of potassium, as well as local treatment, the voice improved a little; in the



larynx, however, there were no more distinct changes, the left vocal cord constantly being in the cadaver position. After some weeks the patient returned home, where he is instructed to continue the treatment. In this manner in the above case, as in several cases of Havilland Hall, the one symptom which disturbed the patient and obliged him to seek relief was hoarseness, and one objective symptom of the existence of aneurism of aorta was complete paralysis of the left recurrent.

This case proves then, without doubt, the importance of examination of the larynx in cases of aortic aneurisms. Still in another regard this case is worth mentioning. It proves undoubtedly the importance of the application of Roentgen rays where there are no classical symptoms of aortic aneurism.

Besides the above case, in which X-rays helped so much in the diagnosis of aortic aneurism, I had occasion still in some other cases to convince myself of the importance of this new diagnostic method.

In one of them, relating to a girl of 19 years, who was demonstrated by Dr. Edw. Zielinski in one of the February meetings of the Medical Society in Warsaw, Dr. Bychowski successfully applied Roentgen rays. In this case, however, of which the correct diagnosis, thanks to the X-rays, was removed from any doubt, I did not find any trouble of abduction of the vocal cord.

It would perhaps prove that the aneurism was not situated in the inferior part of the aorta arch, and in this manner it could not produce any pressure upon the recurrent nerve. A second case was that of a patient 50 years old, who was in Prof. Srazbakow's clinic in the ward of Dr. Kepemniski. The patient, besides typical "tabes dorsalis" is affected, as was again proved by means of the Roentgen rays by Dr. Byschowski, with an aneurism of the aorta, ascendens. In this case the laryngoscopic examination made by me showed right-sided paralysis of the recurrent ("cadaveric position" of the right vocal cord.)

On account of the disorder's being double-sided in this case, in which tabes dorsalis as well as aneurism of the aorta could produce the symptom of paralysis of the recurrent, we are not able to say with certainty if this symptom in this case is central, due to tabes, or peripheral, due to pressure of an aneurism upon the right recurrent. This latter, however, is more probable.

In two more cases I had occasion to see the application of Roentgen rays by Dr. Bychowski. The first is especially interesting from several points that I give it in a more detailed manner.

The patient, some 40 years of age, came to me some weeks ago, complaining of pulsation in the right side of

the head behind the right ear. This symptom troubled the patient constantly, and was combined with a sensation of pain. All treatment, applied by several physicians, as for instance, phenactin, antipyrin, the salicylate preparations, and further, electrization of the head and massage, did not produce any effect. No syphilis. The examination of the right ear, which, as it seemed to me, should give some hints as to the proper character of this disorder, gave, unfortunately, negative results. At the same time I remarked that the patient speaks with a hoarse voice. In answer to my question how long he had had this hoarseness, he said that it had lasted some years,; pulsation, however, he remarked, only since half a year. The examination of the larynx shows right-sided paralysis of abductors, the vocal cord being in the median position.

As the examination of the interior organs was quite negative, I could form no idea with what I was really dealing. I did not doubt, however, that the changes in the larynx must have some etiological connection with the pulsation in the posterior and right side of the head.

Dr. Edw. Zielinski, who also did not find any suspicious indications either in the nervous system or in the heart, was also inclined to the same supposition. I prescribed, above all, potassic iodide in large doses, after which the patient improved so much that the pulsation of the head was not constant, namely, ceased for some hours. Notwithstanding, the wife of the patient having heard of the existence of Roentgen rays, resolved to try this method, so she sent to Dr. Bychowski, who made the transillumination in my, and afterward in Dr. Littman's, presence. Aneurism of the aorta or of the right subclavian was not discovered; only in the region of the pulsation of the head there was seen, although not absolutely, a whitish spot. It could be supposed that here there was aneurism, which, pressing on the skull, produced thinness of the bone. In this manner, in this hitherto obscure case, Dr. Littman, upon the result of the examination with X-rays, proposed trepanation of the skull, with which, however, the patient did not agree. His further fate is unknown to me.

The second case I had occasion to observe quite lately.

The patient, some 30 years of age, with hoarseness lasting six weeks, was also, as in the first case, treated by several physicians without success. The laryngoscopic examination showed complete paralysis of the left recurrent (the vocal cord in the cadaveric position.) As I did not find any indications as to the central nervous system, I was inclined to suppose an aneurism of the aorta (1) from the analogy with the first case. (2) on account of slight stenotic retraction on the left side of the thoracic cavity in the superior part and, (3) perhaps, on account of some irregularity in the pulse (the left being a little weaker.)

In this case there was a striking dyspnea, which I could explain neither from the presence, from childhood, of the moderate struma (especially on the right side), nor from the state of the lungs. Twelve years ago he had left-sided pleurisy, but at present there are no traces of this disorder. No albumen in the urine. The examination with Roentgen rays made by Dr. Bychowski in my presence did not disclose an aneurism of aorta; the latter, however, presented itself during transillumination wider than usual. Thus, this case remains also for me indistinct. I don't suppose that the paralysis of the left recurrent in this case was caused by struma, the more so, as this latter was more decided, on the right side, and has even decreased in size lately. I am rather inclined to think that in this case, perhaps on account of the peculiar position of the aneurism, it could not be discovered by means of the Roentgen rays.

Of other cases of aortic aneurisms which I had occasion to observe lately, one occurred in a patient of 67, from the Infirmary for the Aged. In this case, observed by me together with Dr. Mohlanowski, we had some points for the diagnosis of aortic aneurism, namely, dullness, as well as noise in the superior part of sternum. The examination of the larynx showed paralysis of the right posticus. The right vocal cord was in phonatory position.

In another case of aortic aneurism, (the patient, 52 years old, from the department of Dr. Cherozowski in Jesus Christ's Hospital.) I did not find any changes in the larynx. On the contrary, the case coming from Dr. Pavinowski's department in Holy Ghost Hospital is an interesting one.

A widow, 40 years of age, with ectasy of the aorta and secondary aortic insufficiency (strepitus diastolus in the region of the fourth rib on the left side of the sternum) had, already in the beginning of the disease, hoarseness, the cause of which was found to be a paralysis of the left recurrent, which persists up to the present time, (the left vocal cord being in a cadaveric position.) In this case, also the left pulmonary apex is affected with a tuberculous process, (in the sputa Koch's bacilli.) These are all cases which I had occasion to observe lately.

In view of the fact, that paralysis of the recurrent nerve, especially of the left, can exist in case of latent aortic aneurism as the first and only symptom of this disorder; further, in view of the fact that the initial phases of this affection of the larynx, namely, the so-called "Posticus Lähmung" on one side can exist without symptoms; finally, in view of the undoubtedly much more frequent existence of aortic aneurisms than is generally supposed, especially in their latent forms, we ought, in my opinion, in every case make a laryngoscopic examination, without regard if there are symptoms of aortic aneurism or not; likewise, if there are subjective troubles on the part of the larynx or not.

In this manner, I am sure, we shall be able in many cases to discover this disorder where it would be least suspected. Besides, these paralyses of the larynx, which, as I have found, are exceedingly important in cases of aortic aneurism, there can be, although much more seldom, spasm of the larynx, (cases of Lambert, Bresgen 42, and Lóri) resulting from the irritation of the recurrent by the aneurism. Finally, Lóri mentions also edema of the larynx, of passive character, resulting from the aneurism.

Examination of the larynx can also discover besides the symptoms of pressure upon the nerve in cases of aortic aneurism, pressure upon the windpipe itself by the generally very large aneurism; *i. e.*, the convexity and pulsation of the posterior and left wall, the trachea itself being generally in these cases dislocated toward the right side. These cases are often accompanied by suffocative symptoms. These cases, proved by autopsy, are described

by Selter 43, (in 5 out of 8 cases), Hertel, in which ulceration of the windpipe took place; further, Havilland Hall 44, Mader, Armstrong 45, Daraigne 46, Moll 47, Boullache 48, Lord 49, Schroetter 50 (3 cases), Pel 51, McDonnell 52, and Centstamesson 53, draw attention to a symptom of Oliver, of diagnostic value in cases of aortic aneurism; grasping the trachea between the first and second fingers, below the cricoid cartilage and moving slightly upward, one feels them with every systole, the setting down of the trachea and larynx.

The laryngoscopic examination, however, has not only a diagnostic value in cases of aneurism of aorta, but also a very important prognostic value.

In a similar case observed by Chiari, the patient 42 years old, suffered for six months from hoarseness; cadaveric position of the left vocal cord; aneurism of aortic arch. Since six weeks the movements of the left half of the larynx returns, which the author thinks depends on the pressing of aortic aneurism. Examination with the Roentgen rays has also, besides diagnostic, not less important prognostic significance, namely, the pulsation of the aneurysmatic curve, which, for instance, took place in our first case, and which we can see very distinctly during the transillumination, makes the prognosis much worse because it proves that the burse is not yet filled with coagula; resp. it is more inclined to rupture.

In general, as to the prognosis of aortic aneurism, it is not so bad as most generally stated. Prof. Schmidt observed even complete recoveries in some cases; in one of them it lasted twenty years.

Now, some words about the treatment of aortic aneurism. The above cited Schmidt, upon the principle that in cases of aortic aneurism, the disease rests on syphilitic ground, naturally prescribes the specific treatment, besides kali iodatum, inunctions of mercury, preferably at some sulphur bath.

I think, however, that this opinion is a little too one-sided. I do not believe that syphilis always plays such a role in the pathology of aortic aneurisms. The "kali iodatum," however, in large doses* is always the most efficacious remedy in the treatment of this disorder.

Tillmann recommends electrolysis in this disorder, to cause coagulation of the blood.

Finally, as to the local treatment of the laryngeal disturbances, *i. e.*, paralysis of the vocal cords, electricity and

*In one of Schmidt's cases the patient took during one year, 2,500 grammes of iodide of potassium without any trouble.

massage are the best methods. Such treatment I prescribed in my above first case, with what effect the future will show.

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SARCOMA OF THE NASAL SEPTUM.

Abstract of Paper.

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Up to 1896, there had been collected sixty-two cases of sarcoma of the nasal passages. From the report of these cases it would appear that more than half had recovered, but a closer examination of the history would lead one to place the mortality at a probably much higher figure, as in only a very small proportion of cases is it distinctly stated that there was no recurrence a year or more after the operation. Since 1896, the writer has collected ten cases, of which apparently only one recovered. This was an alveolar sarcoma of the middle turbinate, and there was no recurrence two years after its removal. The writer gives a resumé of a case reported by him in 1891, with the subsequent history:

A man, aged 35, was first operated upon in July, 1890, for round-celled sarcoma of the bony septum. The growth filling the left nostril, was removed by cold-wire snare in several sittings. Two months later the mucous membrane appeared everywhere normal, but a month after this a small rounded elevation appeared on the septum. This showed little tendency to increase, although it never disappeared entirely. In May, 1891, the growth became more rapid but it was not until January, 1892, that the snare and curette were considered inadequate for its removal. Then the whole septum was removed under ether, and found to be under an apparently normal mucous membrane, completely converted into an osteoid sarcoma. The disease was found too extensive for thorough removal. From this time it grew rapidly and when last seen the patient was evidently dying from extension of the growth into the brain.

*Read by title before the American Laryngological Association, at Brooklyn, N. Y., May 17, 1898.

Mrs. W. H. M., aged 42 years, was first seen in June, 1897. Had always enjoyed good health. Left nostril began to be obstructed two years ago. A reddish-gray tumor, filling this nostril, was removed by snare and found to be a myxo-sarcoma. The portion of the cartilagenous septum to which the growth was attached was removed under ether, but showed no evidence of sarcomatous growth. According to a letter from the patient's physician, nearly a year after the operation, there is no evidence of recurrence.

Sarcoma in the nasal passage is less malignant than in other localities, only insofar as it may be in a situation to be thoroughly eradicated. The case of G. W. indicates well the extreme malignancy of the round-celled variety and the literature shows that the mixed varieties may be nearly, if not quite as maglinant. It is quite evident now that the only chance for cure in the case of G. W., would have been the removal of the whole bony septum when the patient was first seen. The slow growth of such a neoplasm should never deceive us as to its real malignancy.

A round-selled sarcoma of septum or turbinate should be removed with a wide margin of healthy tissue. One may be justified in attempting the removal of a myxo-sarcoma, fibro-sarcoma, etc., by means of the snare and curette, if the patient can be seen often. Otherwise, a radical operation should be performed at once. In case of recurrence, a radical operation should be resorted to.

SERIOUS CONSEQUENCES FOLLOWING INTRA-NASAL OPERATIONS.*

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CASE I.—J. S. C., male, aged 30; medical student of very nervous temperament, was in my employ as stenographer more or less during the year 1896; during this time I became familiar with his past history. He had been a great sufferer from rheumatism, and, as a consequence, had become addicted to the use of morphine. This, he assured me, had been completely discontinued, and as proof showed me his arms covered with old hypodermic scars. There was no history or evidence of syphilis or tuberculosis, although his general condition was rather poor, and at various times he had, in my office, attacks of cardiac distress, with pallor and rapid pulse, followed by extreme weakness. These attacks were attributed to excessive use of tobacco, there being no cardiac murmurs appreciable.

During the fall of 1896, patient complained of nasal discomfort, with some obstruction and occasional epistaxis. Rhinological examination revealed small cartilaginous septal spur, and slightly deflected septum in left nasal cavity. Mucous membrane over spur was eroded which, under proper treatment, readily healed. The septal irregularity was not sufficient to urge operation, the discomfort being considered more mental than physical.

The patient, however, continually begged for relief by operation, especially after attending my clinics, until I finally removed the spur. Nothing eventful attended the course of the case.

In February, 1897, the patient, being still greatly impressed with the presence of a deflected septum, prevailed

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upon me to operate for its correction. The Asch operation was easily and quickly performed before my class, February 5, under cocain anesthesia and proper antiseptic precautions. On account of the slight deformity the operation was the simplest I had ever performed.

The patient's nervous temperament was manifest immediately after the operation. It was with the greatest difficulty that he could be compelled to keep his fingers from his nose. The after treatment was intrusted to my assistant and the patient ordered not to neglect reporting daily. This he did for two or three days following the operation, after which neither my assistant nor myself saw him until February 13. He had removed the Asch tube and had sprayed his nose with Dobell solution, using the atomizers in the office of an eclectic practitioner for whom he was working. He presented the appearance of great depression; profuse perspiration on his forehead, skin moist, temperature 103 F., pulse 120; complained of intense headache and pain in both knee joints. An examination of the nose revealed a large perforation at the site of operation covered by dry greenish scabs. No purulent discharge nor injection of the mucosa was apparent. He was at once ordered to bed, given full doses of quinine and frequent nasal douches of warm boracic acid solution. The following day a slight improvement in temperature and pulse was noted; the pain in the head and joints, however, remaining. Being unable to obtain careful attention where he was, he was sent to the Arapahoe County Hospital, February 15. On admission, the symptoms were as above, the physical examination revealing in addition, mitral regurgitation. February 18, a. m., patient became stupid, with slight paralysis of right leg. Toward evening delirium developed. At 5 p. m., Dr. Eskridge kindly examined the case, and found all deep reflexes slightly increased on right side, while superficial reflexes were absent. The tongue protruded well to the right; very slight difference in pupils, the left reacting somewhat better than the right; no retraction of the head; almost complete motor and sensory paralysis of the right side. Diagnosis: Thrombus, which was verified at the autopsy. February 20, stupor, more profound;

right pupil smaller than left; paralysis of right side complete; muttering delirium; death at 5 p. m.

Necropsy.—Performed by Dr. Axtell eighteen hours after death. Rigidity and staining fairly well marked. In the extremities and joints, about the distribution of smaller arteries, several hemorrhagic infarcts are observed beneath the skin; on the arms and chest evidences of old hypodermic abscesses are seen, while over left leg is observed a recent abscess covered with a brown scab. Upon lifting the calvarium no evidence of meningitis is detected, nor can any trace of meningeal inflammation be discovered anywhere. Section of brain reveals entire left optic thalamus and posterior part of internal capsule broken down and softened. The softening extends from the median line to extreme outer border of optic thalamus. At the first bifurcation of the posterior cerebral artery there is found evidence of arteritis and plugging. Right lung is found slightly emphysematous; left pleura contains many old adhesions. There is endocarditis, universal pericarditis with adhesions, the aortic valves are very thick, the spleen and liver are found large and soft and contain many infarcts. The cause of death is general septicemia, thrombus of the posterior cerebral artery, and cerebral softening. The thrombus is evidently due to syphilitic arteritis, in spite of the non-syphilitic history. The endo- and pericarditis are plainly recent, and are responsible for the infarcts in the liver and spleen. Whether the hypodermic abscess on the leg, or the wound in the nose is responsible for the endo- and pericarditis, is an open question and one which I shall not attempt to decide. (The serious sequence of events following the septal operation is sufficient to indicate the close relation which may be assumed to exist between the two.)

CASE II.—This interesting case occurred in the practice of my friend, Dr. W. W. Bulette, of Pueblo, Colorado, through whose courtesy I am permitted to briefly report it. Miss M., aged 25, consulted Dr. B. March 6, 1897. There is a family history of phthisis and asthma. Patient has always been delicate and of nervous temperament. Has had diseases of childhood, suppuration of both ears; grip in 1893 and 1894, tonsillitis, colds in head, and has

been a mouth-breather for years. In April, 1894, she developed so-called cottonwood fever, which in all symptoms resembles hay fever and lasts until about June 15, of each year. Rhinological examination shows hypertrophic rhinitis, large exostoses adherent to septum, middle turbinates, and vault of nares on both sides; follicular pharyngitis. March 26, Dr. B. removed the right exostosis under cocain and asepsis. Good recovery. April 3, left exostosis removed under similar precautions. Treatment preparatory to operations consisted of antiseptic spray from March 6, to March 26. After-treatment consisted of cleansing, followed by a spray of 10 per cent. solution of antipyrine, followed by packing with iodoform gauze saturated with a 10 per cent. solution of tannic acid, which was retained for twelve hours. April 5, patient developed symptoms of cerebral meningitis and died on April 7. No autopsy.

In presenting this communication it is not the author's intention to elaborately analyze or comment upon the dangers which may follow operations in the nose. To this honorable, well posted, and thinking body of rhinologists, such a course would be but tiresome and useless. The mere relation of these two cases is sufficient to direct your thoughts in the channel which mine have taken and cause you to arrive at similar conclusions.

Many words of warning have been, and are still, heard against unnecessary, injudicious and severe intranasal measures. The paper of Prof. J. Solis-Cohen (1) and the discussion which followed its reading in 1885, have been of inestimable value to rash and impetuous youths in the profession, and though Rice states that "the patient's life is rarely endangered," the tenor of his paper on "Antiseptic Nasal Surgery" (2) is a note of warning. Dr. Hobbs (3) puts it very strongly when he says "while judicious and properly executed rhinal operations have done, and are doing an immense amount of good, for this very reason the temptation is increased in many instances to do operations that were better not done, particularly by the younger men just making their entrée into this special line of work. They are loath to allow an opportunity to pass to saw a septum, to drill an exostosis or to cauterize

a protuberance or an enlarged turbinate. The mere suggestion of a septum spur, or a bony protuberance, or an enlarged turbinate, is too often deemed a sufficient reason for a surgical procedure, even though no subjective or objective symptoms may exist."

A great variety of accidents may follow intra-nasal operations. Lermoyez (4) divides them into three classes: 1st, infectious; 2d, nervous; 3d, mechanical. The commoner symptoms of malaise, fever, myalgia, etc., are well known. Remarkable and unusual after-effects have been reported by reliable observers, among which we find septal abscess by Liederman (5) and Mayer (6). Loss of memory, spasmodic cough by Thorner (7), amaurosis by Thorner (7), Packard (8), and others. A peculiarly interesting instance of pyorrhea alveolaris is reported by Dr. Bottome (9), of New York; one of prolonged hysterical manifestations by Luzatti (10), and one of tetanus after tamponning by Arcangeli (11). Treitel (12) asserts that he has *rarely* observed infectious sequelæ after operations in the nose, and that *never* have serious infectious processes followed. On the other hand, the following cases represent not all, but probably the most noted ones which have been reported, and in which death has supervened:

Stoerk, K. (13), case of meningitis, following curetting for chronic purulent rhinitis; death in three days; observed in 1860. Five cases of purulent rhinitis followed by meningitis.

Locherer (14), death following curettment in a case of nasal polypi.

Wagner, R. (15), meningitis and thrombosis of longitudinal sinus after galvano-cautery to middle turbinate; hemorrhage, tampon; death thirteen days after operation.

Lange, V. (16), probably sinus thrombosis after galvano-cautery for bony and membranous occlusion of right nasal fossa; death six days after operation.

Rayser (17), meningitis after removal of polypi by snare; empyema of antrum of Highmore; death in eleven days after operation.

Broechaert, J. (18), meningitis of right temporal lobe and falx cerebri after operation for polypi by galvano-cautery; death twenty days after operation.

Rethi, L. (19), meningitis, thrombosis, pyosepticemia, hemorrhagic and purulent nephritis, purulent inflammation of joints after several operations for nasal polypi; hemorrhage, tampon; death five days after last operation. This author refers also to cases of Voltolini and Lublinski.

Quinlan (20), meningitis after electro-cauterization of middle turbinate. Author also mentions a case by Baruch in which fatal results followed a sawing operation.

Leplat (21), reports an interesting case in which death occurred presumably from meningitis, following the forcible probing and injection of the lacrymal canal.

Destot (22), relates a case which has an intimate bearing upon the subject under discussion. A man 46 years old had an acne pustule on the left ala nasi, which he frequently opened by scratching. After a cold he became seriously ill and died. The autopsy established the cause of death as thrombosis of the ophthalmic veins and cavernous sinus directly traceable to the acne.

Meningitis, sinus-thrombosis, and death, are not infrequent accompaniments of purulent affections of the nasal accessory cavities, and in some instances in which operations were undertaken for relief of empyemata it has been difficult to decide the relative role played by the disease and the operation. Flatau seriously questions whether death in his case was due to operation, or to a latent meningitis (23). Würdemann (24), reports an instructive case in which there occurred alarming septicemia with maxillary, ethmoidal and sphenoidal abscesses, followed by recovery after appropriate surgical treatment.

In speaking of the causes of meningitis, Collins (25), lays stress upon operations of the cephalic extremity including the nose, and upon pyogenic diseases of the adjacent cavities. In phlegmonous inflammation of the nose he states that the veins form the pathway for infectious material. Ziem (26), also speaks of the nose as the entrance for infectious conditions. That a direct communication may exist between the sub-arachnoid space and the lymph spaces in the nose has been shown by Flatau (27); and Heubner (28), has reported a case in which the meningococci were found in the nasal secretion of a meningitic patient. A knowledge of the close relation between

the nose and cranial cavity would deter many from intra-nasal operations, were it not for the wonderful investigations of such men as Piaget, Thomson and Hewlett, Würtz and Lermoyez, Wright and Park, and others. While all observers are not entirely agreed, the fact seems fairly well established that the nasal secretion is sterile and even possessed of some bactericidal properties. On the other hand, it is interesting to note that, as Gradenigo (29) has pointed out, a difference in the character of discharges between normal and diseased noses must exist, and that non-pathogenic germs may under altered conditions become pathogenic (McIntyre (30)). An exceptionally important conclusion is the one arrived at by nearly all observers, namely, that the source of contamination is in the vestibule. This is of the greatest practical value and furnishes the key note to all that may be said on aseptic and antiseptic nasal surgery. * In addition to the exercise of care in introducing infectious bacteria from the vestibule, the greatest stress should be laid upon perfect surgical cleanliness of the surgeon's hands and instruments. Elaborate pre-operative or post-operative manipulation is not only unnecessary, but harmful. The post-nasal syringe or the nasal cup are far better than atomizers to cleanse the nose; washing from the naso-pharynx avoids the possibility of infection from the vestibule, while it destroys no epithelial cilia, which are important in establishing a free flow of nasal secretion.

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A CASE OF ADENO-CARCINOMA OF THE NOSE.*

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The author states that it is surprising what a difference of opinion exists among writers regarding the frequency of adenoma, carcinoma, and adeno-carcinoma of the nose. Many authors do not mention it at all, others consider it a rare occurrence, while a few think it is not infrequently met with. There is no unanimity of opinion regarding cases of this kind. The number of cases of adeno-carcinoma of the nose which are thoroughly observed, and authentic on account of competent microscopic examination, is very small up to date.

E. P., aged 47, a farmer, was referred to the author by Dr. V. T. Churchman, of Charleston, W. Va., September, 16, 1895. Father died of "heart disease"; cause of mother's death unknown; no history of carcinoma or tuberculosis in his family.

About one year ago he noticed some obstruction in the nasal cavity, which gradually increased until breathing through that side was absolutely impossible. Four months after he had noticed the trouble, Dr. C. removed a large growth from the nose with a snare, after which breathing was again free for about one month. Then the same trouble reappeared.

Another large portion of the growth was again removed. Then he was free for about two weeks, when breathing was again impeded, and two weeks later the left nasal cavity was entirely closed. Operations were repeated at intervals of about one month, so that up to the present time eight operations have been performed. The operations

*Abstract of paper read at the annual meeting of the American Laryngological, Rhinological and Otological Society, at Pittsburg, Pa., May 11th and 12th, 1898.

were followed by moderate hemorrhage, and for most of the time were not very painful. His only complaint is obstruction to breathing. Has not lost weight. Appetite good.

The following is the condition upon entrance into the hospital: Man of medium size, fairly well nourished, nothing abnormal to be seen about his face. Hearing in left ear diminished; the left side of the nose entirely obstructed by a growth which extends from the vestibulum backward, and fills completely the space between the choana and the Eustachian tube; color grayish-red, surface uneven and resembling somewhat a mass of cauliflower, is soft, and bleeds upon touch; origin cannot be ascertained, but it appears to come from the middle meatus, which is completely obliterated. Septum free from growth; no glands enlarged. During my absence Dr. Allen removed with cold wire snare a large portion which surrounded the orifice of the Eustachian tube. Hemorrhage rather abundant. Microscopic examination showed the removed pieces to be typical adenoma. October 5, about two and a half weeks after this operation, nose began to be again obstructed. I removed with cold wire snare as much of the growth as I could. Microscopic examination confirmed the first diagnosis. On October 22, the nose was again entirely obstructed. Operation under chloroform anesthesia, in which an enormous amount of the tumor was removed from the nose and post nasal space with snare and curette. Pieces varying in size from a filbert to that of a small walnut, were removed. They all were very friable, hemorrhage abundant. Left side of nose packed with iodoform gauze. Patient did very well after operation; no hemorrhage after removal of the plug.

On October 29, one week after the operation, the growth was seen to return. The patient was now given to understand that there was no hope to remove all of the growth by intra-nasal procedure, and the advisability of a more radical operation by temporary resection of the upper jaw was suggested to him. The patient refused operation and left the hospital.

Portions of the growth removed at this last operation were examined by Dr. Albert H. Freiberg, then micro-

scopist of the hospital, who had the kindness to send me the following report:

"The surface of the growth is not papillary, but smooth. Lying in a well developed stroma of young connective tissue abounding in easily stained nuclei, is seen an enormous aggregation of tubuli of various conformation. Some of them are fairly straight with lumina of small calibre, others convoluted in their course, and others still short with large dilated lumina, reminding one of cystic formation. Here and there is to be seen an atypical collection of epithelial cells without evident lumen.

"The tubuli are lined with a tall cylindrical epithelium whose nucleus is large and very easily stained. I have been unable to detect anything like cilia on these epithelia. Taken altogether, the picture reminds one forcibly of the malignant adenoma of the uterus. I should call it *malignant adenoma*."

For the rest of the history of this case I am indebted to Dr. Churchman, of Charleston. A few months after the last operation the patient began to decline. The growth had to be removed every few weeks. On April 25, Dr. C. wrote that he had operated upon him eight or ten times since he left Cincinnati. The operations had grown to be very painful. General health very bad, sallow complexion. The septum and right side of the nose had become involved; eyelids were edematous. At this time he seemed to be willing to have an operation done. Meanwhile Dr. C. had some of the masses, removed on April 25, sent to the pathological laboratory of John Hopkins Hospital. The report was, that it was a typical case of adenoma changing into an epithelioma. Dr. C. did not see the patient for one week; when he saw him again his nose was double its size and was purple; his eyes were very much swollen, protruding and bloodshot, and he was not able to swallow anything but soft and liquid food. The patient returned to his home, and Dr. C. did not see him any more. He died on June 12, but Dr. C. did not hear of it until after he was buried, when he received the remainder of the history from the family physician, which is as follows: The patient grew rapidly worse, the growth broke through the walls of the nose at its bridge, from

where severe hemorrhages took place; the left orbit was more and more involved, until two and a half weeks before death the left eye was destroyed; at the time of his death the growth in the left orbit was two and a half inches in diameter, and bleeding all the time. No hearing for ten days preceding his death; his mind was entirely destroyed the last five or six days.

We have to deal here with a case of malignant disease of the nose, and if correct statements were given by the patient, the duration of the trouble was about one year and nine months, or perhaps two years. The question arises whether this was an adenoma that underwent carcinomatous changes, or whether it was not a case of benign tumor in addition to which there developed later a carcinoma. Adenoma of the nose is looked upon by many as a benign tumor; however, all authors are agreed upon the possibility, and some even on the probability, of an adenoma becoming malignant. Pathologists and clinicians mention the manifest malignant tendencies of adenoma of the mucous membranes, and speak of a form of adenoma of the uterus as adenoma malignum. In an advanced stage, when the epithelial elements assume the shape of dense cell conglomerations, we are in the habit, according to Ziegler, to call such a growth an adeno-carcinoma.. It is certain that microscopically the tumor represented in the earlier stages nothing that could have been looked upon as epitheliomatous; and yet the clinical course of this case, and a histological examination made about six months later, showed a tumor changing from an adenoma into an epithelioma. This is the reason why this tumor must be classed as an adeno-carcinoma of the nose.

CHRONIC INFLAMMATION OF THE PHARYNGEAL TONSIL, WITH LITTLE HYPERTROPHY,*

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Since the attention of the profession was called to adenoid vegetations, or hypertrophy of the pharyngeal tonsil, by Wilhelm Meyer, the subject has received much consideration and has been the theme of numerous monographs.

It is now universally conceded by all who are best qualified to judge, that lymphoid hypertrophy at the vault of the pharynx of sufficient degree to interfere with nasal respiration is productive of harm in several directions, the most important of which are:

1. General lack of development through insufficient aerization or oxidization of the blood, with its accompaniment of flat chest, etc.
2. Naso-pharyngeal catarrh.
3. Aural disease.
4. Increased liability to infection.

These various effects, along with other minor ones, have been repeatedly brought forward and dwelt upon. The pathology and treatment of adenoid vegetations have been most elaborately discussed. It would seem impossible to present anything new on the subject.

In the typical case, where obstruction is a marked feature, there can be no question as to the expediency, or, in fact, the imperative necessity, of complete removal of the growth.

It is the purpose of this paper to present another class of cases, viz., those in which there is chronic inflammation of the pharyngeal tonsil or mass of lymphoid tissue at the vault of the pharynx, with little or no hypertrophy.

For a long time, I was little inclined to operate unless there was sufficient hypertrophy to interfere with nasal

*Read before the American Laryngological, Rhinological and Otolological Society, May 11, 1898.

respiration. Lately, I have come to the conclusion that there are some cases of chronic inflammation of the pharyngeal tonsil with little hypertrophy, which require removal of that little to effect a cure of the evils attending the condition.

In such cases we find a very small collection of the adenoid tissue at the vault of the pharynx, obstructing little, if any, a perfect view of the choanæ. This mass is perhaps a little redder than normal, particularly if it has recently been the seat of an acute inflammation, to which it is a frequent subject. It is usually covered, more or less, with thick mucus or muco-pus, varying in color from white to a greenish yellow; perhaps streaks of this secretion may also be seen on the posterior wall.

The nasal cavities are usually quite free from secretion, except such as may find its way from the naso-pharynx, and that takes place to a less extent than is the case with great hypertrophy of Luschka's tonsil. This affection is one of the most frequent causes of naso-pharyngeal catarrh in children.

Patients with chronic inflammation of the pharyngeal tonsil are the subject of frequent attacks of so-called "cold in the head." In many instances it is really not a coryza from which they are suffering, but an acute inflammation of the tonsil. During these exacerbations or acute attacks there is apt to be a certain degree of pain in the naso-pharynx, which gives rise to more or less complaint of sore throat. During such an attack, the vault may be frequently dotted with small spots of exudation, as is seen in acute folliculous inflammation of the faucial tonsils.

Inasmuch as part of the chain of lymphoid glands which guard the upper part of the respiratory tract is disabled by disease in this affection, phagocytosis is enfeebled, thus permitting a more ready entrance into the system of pathogenic organisms. This probably accounts for the increased liability of such subjects to infection—and I mean by infection, not only that of the regularly classified zymotic diseases, but also that of less clearly recognized processes. For instance, I believe that condition known as a "cold" is more often the result of the entrance into the system of pathogenic organisms, carried into the air-

tract by dust, than that of exposure to cold or damp air. In this connection, it is well to mention the frequency of so-called "bilious attacks" in children suffering from chronic inflammation of the pharyngeal tonsil; often in cases even where there is little hypertrophy. There is some close connection between these two conditions. To my mind, the malaise, chill, slight pyrexia, nausea, etc., point to a septic process, due to infection. This may be auto-infection, from absorption of pus or muco-pus collected in the naso-pharynx; or infection from without, by means of dust-laden air. At any rate, the frequency with which such attacks occur in these subjects is worthy of remark.

Chronic inflammation of the pharyngeal tonsil is usually attended with more or less general debility and lack of tone. Anemia is a pronounced symptom in many cases.

During the acute attack of inflammation to which the diseased tonsil is especially disposed, the eustachian tube and middle ear are frequently involved, and there results acute or subacute inflammation there. However, in my experience, the inflammatory process set up in the middle ear is generally of a subacute type, and does not often go on to suppuration as is so commonly the case when adenoid vegetations are present to such an extent as to cause considerable obstruction.

Finally, the conformation of the naso-pharynx in some cases may be such that a small collection of hypertrophied lymphoid tissue will impair the resonating powers of that cavity to such a degree as to prevent the production of the finest quality of tone, which is of especial importance to the singer. The removal of this little hypertrophy is sometimes followed by the most gratifying results in patients who are professional singers.

Many of these cases of chronic inflammation of the pharyngeal tonsil will, of course, get well with simple local and general treatment. The administration of iodide of iron, or hydriodic acid is indicated. General hygiene and the life and surroundings of the patient should be looked after.

Local cleansing by sprays and applications of Mandl's solution, 5 to 10 grs. of iodine to the fluid ounce of glycerine are to be recommended.

While I do not wish to go on record as an advocate of the indiscriminate and reckless scraping out of every naso-pharynx that presents itself, I do maintain that in certain cases of chronic inflammation of the pharyngeal tonsil, even where there is little hypertrophy, a removal of that little is the quickest and most efficacious method of treatment, and the one attended with the most lasting results.

FOREIGN BODY IN THE LARYNX AND A MODIFICATION OF KIRSTEIN'S AUTOSCOPY.*

BY E. FLETCHER INGALS, M. D.,

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A boy, 3 years of age, drew a shoe fastener into his larynx four weeks before he was brought for examination. He was aphonic, and dyspnea was moderate. The foreign body could be felt in the vestibule, but could not be seen. Under chloroform anesthesia, and the patient on his back with his head hanging over the top of the table, a vaginal retractor four inches long was used in an unsuccessful endeavor to examine the larynx. A forceps was then used without effect, and finally the cricoid and two upper rings of the trachea were divided. By means of a tracheal forceps the shoe-eyelet hook was pushed upward and caught by the finger. A pneumonia complicated the recovery.

The retractor was found to be too short, and in a second one Dr. Ingals had this defect corrected, and in addition adopted the curve and notch (for the median glosso-epiglottic ligament) suggested by Kirstein, in the *Berliner Klin. Woch.*, 1898, pp. 158, 255. The improved retractor has proved satisfactory.

*Abstract of paper read at the Twentieth Annual Congress of the American Laryngological Association, May 16, 17, and 18, 1898.

REFLEX NEUROSES AND THE NEUROPATH.*

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Mr. President and Gentlemen:—It is with great diffidence, not to say trepidation, that I appear before you. When your honorable vice president came to me at the eleventh hour and asked me to say something to this polysyllabic aggregation of brains and erudition, I was decidedly panic stricken but, appreciating the compliment, accepted with pleasure. I shall detain you but a very few minutes.

The kinship of Neurology to ophthalmology, otology, laryngology and rhinology, is exceedingly close. The retina as you all know, is simply a bit of elaborated cerebral cortex on a long pedicle, and almost the same may be said of the internal ear. The hypophysis, snugly ensconced in the sella turcica, is a sort of cerebral tonsil—partly nasal epithelium, partly gray matter of the brain. The ophthalmologist must know the optic atrophy and nystagmus of multiple sclerosis, and the neurologist the nystagmus of leucoma and the central scotoma of toxic amblyopia. How nearly a cerebellar tumor pressing on the restiform body may simulate aural vertigo with tinnitus and deafness, most of us have had occasion to observe, and disease of the frontal sinus may be hard to differentiate from abscess of the frontal lobes of the brain. The ataxia of erroneous visual projection, the dizziness of middle ear disease and the pavor nocturnus caused by adenoids must be known to the neurologist. Hysterical amaurosis, auditory atrophy, from tabes and the laryngeal crises of the same disease

*Remarks made before the third annual meeting of the Western Ophthalmological, Otological, Laryngological and Rhinological Association.

are familiar to his confrères, of the eye, the ear and the throat. In anatomical study, in pathological research and at the bedside, we have much in common and we may often extend each to the other a helping hand. I am sure I never get into serious conversation with an eye or ear man without learning something I am glad to know. But occasionally there are encounters, when belligerency must be recognized. Of late years these have had to do largely with so-called reflex disturbances. That is, with rather definite nervous disorders, such as chorea and epilepsy, or isolated symptoms, such as localized pain or twitching, or general nervousness and the like, said to arise from local abnormality of the eye, ear or nose, without marked symptoms referred by the patient's sensations to these organs. My own experience is that the better neurologists and the better eye, ear and throat specialists really differ very little on the subject, but, in a general way, neurologists are reproached with not recognizing the importance of these local diseases in the etiology of the functional nervous affections, and in return the nerve men are apt to accuse oculists of narrow vision; of not knowing, and sometimes not trying to know much about the nervous affections they treat through the eye. I hope I may be pardoned if, in this question, my leaning is rather toward the position of the neurologists, but I beg of you to believe that the few words following are not uttered in any spirit of criticism but simply in the way of a friendly chat on a subject of importance to us all.

It would seem reasonable to assume, as a premise, that if the oculist is to attempt to relieve certain nervous manifestations by eye treatment, he should have a good understanding of these symptoms in all their relations. For instance, it is manifestly not sufficient for him to know that headache is caused by astigmatism. He must also know that astigmatism may cause no headache, and that similar head-pain may be due to other causes. More than this, he should know what these other causes are, how to detect them and *how to estimate their importance*. Otherwise, he puts himself upon the plane of the apothecary who knows that phenacetin will alleviate pain and promptly serves it to every customer who complains of cephalalgia.

That might be an easy plan upon which to practice ophthalmology but it is unworthy of the medicine of this end of the nineteenth century.

In handling functional nervous trouble, for instance, it is now incumbent upon the ophthalmologist to recognize the "neuropath", or neurotic individual. How shall he be known? First of all by the ancestors and relatives he keeps. Heredity may put altogether another face upon an apparently simple disorder. I have at present under my care a nervous and migrainous lady whose family history reveals migraine in father, mother, the only brother, the only sister, and in her own two children, the youngest of whom is only 6 years of age. Obviously the congenital twist of the central nervous system in such a case cannot be ignored. But with the single exception of migraine, nervous diseases are rarely inherited in kind; that is, the particular affection of the parent transmitted to the child. The influence of inheritance is none the less paramount, and it is the inalienable right of every nervous patient to be kindly but closely questioned as to the occurrence in the immediate or collateral relatives of insanity, eccentricity, epilepsy, migraine, paralysis, inebriety, hysteria and nervous prostration or simply the nervous temperament. And please allow a practical physician to add that general inquiries are notoriously inadequate and that "nervous prostration" covers a multitude of neuropathic sins. Time and again have categorical questions brought a neurotic taint to light after distinct negation of nervous kinship and "nervous prostration" has turned out to be anything from innocuous nervousness to paranoia and general paralysis of the insane.

Even more important than the genealogical bough is, of course, the bent of the individual twig. This is nearly always clearly revealed by the life history if biographical details are carefully elicited. These, when obtainable, should begin with birth. Parturient asphyxiation or post-natal convulsions may mark the occurrence of cerebral injury which is later voiced in somatic or psychic imperfections. Infantile convulsions, prolonged enuresis of childhood, delayed teething, walking and talking, unsatisfactory or spasmodic progress at school, accesses of easily

provoked passion, and lack of harmony with other children—these are all indices of more or less importance. A slowness in comprehending and accepting the ordinary moral obligations of civilized life is never to be passed over lightly. The boy who, in spite of good influences, is an incorrigible liar or thief, may not develop into a criminal, but he is liable in later life to be the prey of functional nervous troubles.

Particularly must the physician be on the lookout for the self-centered individual who seems ordained to be possessed by a conviction, but by a conviction born of emotional impressibility rather than of mature reflection and consecutive reasoning. This is the possibly brilliant person, ever in unstable equilibrium, who is the victim of his cerebrum. The history of such a patient may exhibit a kaleidoscopic succession of illnesses and recoveries; of apparently causeless prostrations and sudden cures; a motley mixture of symptoms referable to all organs and a queer combination of uselessness and admirable capacity, that stamp him with the die of psychic susceptibility. He is the pathologic weathercock, the constant sport of changing imperative conceptions. He is doomed to feel and suffer much, to indulge liberally in introspection and personal comparisons.

Finally, the neuropath is brought to light by the examination of himself. The ordinary marks of the imperfect man—often called stigmata of degeneracy—are to be noted. Among them, asymmetrical cranium or face, microcephaly, deformed dental and palatal arches, abnormal teeth and misshapen ears, are of the more important and easily detected. It has seemed to me that excessive associated movements should be classed with these. Neurotics are more apt than others to make grimaces when they talk. No one stigma is of much importance, several of them together always are. The deep reflexes are generally very brisk and I believe an increase of the wrist-tap and jaw-jerk to be the most indicative of these, unless there be an indication of ankle-clonus, which is very positive evidence indeed. Fine vibratory tremor is frequent and a difficulty in shutting the eyes very tight, far from rare. In the essentially nervous person, pain is seldom unique.

If he have frontal headache, there will also be backache, or occipital discomfort, or distress in the epigastrium. In women, inframammary pain on the left side is almost the rule. If there be tenderness of the supra orbital nerve (which is never exquisite except in typical neuralgia) it will also be found over the suboccipital, and if the cervical spine be sensitive to pressure, the lumbar region will not be exempt.

To the rapid shifting of tender points I have often called attention. I think it of importance. Such points are frequent in nervous people and the rapid shifting illuminates not only the character of the tenderness but also the general condition and tendency of the patient. Given a patient with a tender point, or a number of them, along the spine on the vertex, in the temple, or elsewhere, the sensitive point is first to be definitely located, and this can ordinarily be done with the exercise of a little care. By pressure with the rubber tip of a pencil, the tenderest spot is found and then compared with the surrounding area, to determine positively that it is more sensitive than the adjoining surface. As this procedure is carried out it is not rarely observed that the hypersensitive point becomes more tender and the surrounding territory less so. The exact location where pressure is very painful having been settled, it is lightly marked with a pencil and the physician directs his attention to other parts; to the eyes, the heart, the throat—where you will. After a few moments he returns to the region of the tender point and examines for it again, taking care *not* to press upon the marked place first, but upon points more or less adjacent to it. He will now find a tender point half an inch to four inches distant from the original tender place, and in definitely locating this second sore spot as he did the first one, the latter will be found to have disappeared. That is, the place previously marked is no more tender than its surrounding area. In other words, the tender point that was so exceedingly hyperalgesic has shifted half an inch to four inches. Such shifting eliminates at once not only organic disease but a *local* neurosis. It could be due only to abnormal action of the highest sensory centres of the cerebral cortex, or rather to a perverted psychic reaction to sensory stimulus, a state

of affairs that could not possibly be caused alone by local disease of the eye or nose.

Possibly you may ask, "what is the use of all this to the eye or throat man?" A great deal of use. First, the imperfect and neurotic individual is naturally and actually the one who most frequently exhibits imperfections in the eye and nose. Second, these may be, and frequently are, simply coincidences and have no more etiologic relation to existing nervous symptoms than have the supernumerary teeth or crooked ears. Third, supposing that a low degree of refractive error or a sensitive turbinate acts as an irritant on an abnormally sensitive nervous system, correction of the local abnormality is only the least part in the treatment of such a patient. Fourth, because such a patient has this or that discomfort in eye or nose, it does not follow that there is local disease. That a person has periodical headache with scintillating scotomata, or even the scotomata without cephalalgia, is no proof at all that the eyes are at fault. Fifth, as a matter of fact, the neuro-path is the person *par excellence* who wishes local treatment and who is not benefited thereby. When I say not benefited, I mean permanently; for he frequently experiences some temporary relief. Indeed, if treatment does not immediately make him worse, he is sure to say that it does him good. But the inborn instability and impressibility is bound to assert itself to the confusion of the doctor and the despair of the patient. The latter is fertile in suggestion and facile in change; as inconstant in results of treatment as he is in medical allegiance. In deciding on operative measures and in formulating a prognosis, I beg of you to beware of the patient who has passed through the hands of the ophthalmologist, the otologist, the laryngologist, the rhinologist, the gastrologist, the proctologist and the neurologist.

Venetian Building.

A CASE OF NASAL FIBROMA. A SUPPLEMENTARY REPORT.*

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The original report of this case, made in 1888, was defective in not containing a detailed description of the microscopic examination. Since then the occurrence of fibroma in the nose proper has been questioned by competent pathologists, the opinion being held that so-called nasal fibromata are mere extensions into the nose from the border of the naso-pharynx where they commonly occur, or else that they represent ordinary edematous nasal polypi with perhaps more fibrous tissue than usual in their composition. Hence, it is felt that a supplementary report of this case is justified, more especially as the lapse of time has furnished additional information and clinical data.

The following is an abstract of the case:

Mrs. R., aged 39 years, came under my observation in 1886, having had a nasal growth of unknown character removed from the left nasal fossa by means of forceps ten years previously. She remained well for five years and then again noticed gradually increasing obstruction, and later a dark reddish mass presenting at the left anterior nasal aperture. The left nostril was much distended, showing evidence of commencing frog-face and the fossa anteriorly was filled by a firm elastic tumor which projected slightly from the anterior naris. There was no undue prominence over the antrum of Highmore nor encroachment upon the orbit or naso-pharynx. Efforts to

*Abstract of a paper read before the American Laryngological Association, 1898.

include the neoplasm in a galvano-cautery snare failed on account of its size, tight fit and numerous adhesions; so the lower portion was slit up by the knife electrode, some adhesions separated in like manner, and a large section, perhaps one-half of the tumor, extracted by means of snare and forceps.

The space left by the part removed now admitted of more extended examination. The left half of the external nose was decidedly more prominent than the right. The left fossa above the line of the inferior turbinated body was yet filled by a firm, elastic, irregularly lobulated neoplasm. No middle turbinated body was discernable, its position being occupied by tumor. The inferior meatus was now free, corresponding to the portion of the growth already extracted. The anterior two-thirds of the septum narium had been pressed far over to the right side, enormously increasing the capacity of the left fossa. The nasopharynx was normal, only a faint outline of the tumor located well forward being seen through the left choana. The posterior part of the septum is in the median line.

The remaining part of the growth was removed in repeated sittings by means of the galvano-cautery steel wire snare. Usually it was necessary to make a preliminary incision into the substance of the tumor with a knife-electrode in order to prepare a place for the wire, or by the same means to detach an adhesion, that the snare might take hold. The tumor was thus followed up to its primary attachment which extended along the horizontal plate of the ethmoid bone and included that part of the ethmoid which contains the cells and from which projects the middle turbinated bone, the latter having disappeared by absorption and the cells having opened into the general nasal cavity. In fact, since the complete removal of the growth the nasal fossa is like a great ovoid cavern with perfectly smooth walls. For some months thereafter it would incrust in the manner of atrophic rhinitis, but this annoyance gradually ceased. Eleven years have elapsed since the operation and the patient has remained free from recurrence, and devoid of any nasal disease or discomfort whatsoever.

All parts of the growth removed were firm in texture

and had the gross appearance of a fibroma, not resembling in the slightest degree the ordinary edematous nasal polypus. The microscopist reported it to be a fibroma. Recently the tissue has been re-examined by Dr. Jonathan Wright who has kindly reported as follows: "The sections are largely made up of fibrous connective tissue whose outlines do not show very clearly, owing probably to the long time the specimens have been kept. I presume you are justified in calling the growth a fibroma, although there are a number of edematous areas in it as well as the evidences more commonly regarded as those of chronic inflammation. The longer I study nasal pathology the harder I find it to draw the line between inflammatory and true benign tumors, and the more inclined I am to believe that that line is a very arbitrary one and really should have no existence, as benign neoplastic growths are, I believe, all the result of chronic inflammation or analogous metabolic processes."

The interesting question relative to the pathogenesis of benign neoplasms, fibromata among others, which is raised in the latter part of Dr. Wright's report, will not be followed further at this time; the point which it is designed to establish being, that in its clinical course, macroscopic aspect and microscopic structure this nasal neoplasm corresponds with our usual conception of a fibroma.

Against the supposition that it might have been an ordinary mucous polypus perhaps with more fibrous tissue than usual may be mentioned, that the patient has not then nor since presented any of the frequent concomitant conditions of mucous polypus, such as hypertrophic rhinitis, polypoid degeneration of the middle turbinated bodies, ethmoiditis, sinusitis, asthma, hyperesthetic rhinitis, multiple formation or recurrence.

Very few perfectly authentic cases of nasal fibroma are recorded. Morell Mackenzie reports one of two years duration in the person of a female aged 35. A pedunculated solid growth, microscopically composed of closely interlaced whitish fibers, originated from the root of the nasal fossa well within the nasal cavity. The same author cites two other cases, both devoid of microscopical examination, but one of them was demonstrated at the autopsy

to have been attached at the posterior part of the vault of the left nasal fossa, was firm, elastic, and on section seemed to be of purely fibrous structure. Kempf and Buchanen, cited by Wagner, each report a case of probable fibroma. They both originated from the septum, were of large size and had the gross appearance of fibromata. Dr. Charles H. Knight has described a smooth movable tumor attached to the posterior end of the inferior turbinated body which under the microscope proved to be a pure fibroma. Horne records a case, of traumatic origin, in a woman aged 70, attached to the septum. In Price Brown's case the very vascular fibroma originating from the side of the septum posteriorly seems to have encroached somewhat upon the naso-pharynx, inasmuch as it formed attachment also to the anterior border of the tuber of the eustachian orifice. Crighton reports two cases, one attached to the septum at the junction of the middle and posterior thirds of the nasal fossa, the other attached apparently to the ethmoid. Both were declared to be pure fibromata.

Without pretensions to an exhaustive research, I have thus collected eleven cases from recent literature. A few of these are imperfectly recorded, but enough remains to indicate that while rare, the occasional occurrence of genuine fibroma in the nose proper should no longer be questioned.

OTHAEMATOMA AND CHRONIC PERICHONDritis OF THE AURICLE.*

By JOHN O. McREYNOLDS, B. Sc., M. D.,

DALLAS, TEXAS.

Before an association like this, composed of men so thoroughly acquainted with all the ordinary problems of otology, I would consider it without excuse to reiterate the principles already established beyond dispute, or to go over, in detail, the diseases so commonly found in the practice of our daily lives. But if you will bear with me, I will briefly report two illustrative cases of two similar affections which, in my experience, have been exceedingly infrequent, and judging from the very few recorded cases in literature, my own observation has been no exception to the rule. Indeed, my purpose shall in great measure be accomplished, if the recital of my own cases will succeed in calling forth the reports of similar unpublished data that will lead to a more thorough knowledge of these conditions with regard to their causations, pathology, clinical history and treatment.

The first case which I shall describe, is one at present under my care, and it exhibits the characteristic features of a chronic perichondritis of the auricle of traumatic origin. The patient, Mr. L. W., 20 years of age, and of a good history as to general health, was thrown from a bicycle during a race in Kansas, on August 5, 1897, and received a slight wound on the upper portion of the auricle near its attachment. The wound was dressed without due regard to the established aseptic methods, but it healed after a few days so that the patient was led to expect no further trouble. There soon developed in the upper part of the pinna a moderate swelling, which gradually extended downward, until finally, after the lapse of a few months the entire cartilaginous structure of the ear became involved, resulting in an enormous enlargement of

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the ear in all diameters, with complete closure of the external canal. The tumor was dark red in color, nodulated in form, very painful upon pressure, somewhat elevated in temperature and presented its greatest prominence on the anterior surface of the ear, obliterating first, the fossa of the helix, and subsequently also the fossa of the concha, and later still, the external meatus. The auricle was increased to many times its normal diameter, and it stood out from the head after the fashion suggested in the comic pictures of the "Yellow Kid." There were no constitutional manifestations worthy of note, and the patient was never compelled to surrender his accustomed vocation. At one time the inflammation was so intense and so extensive that it suggested the danger of erysipelas, and appropriate treatment was instituted to prevent such an occurrence.

Without entering into the details of the management of the case, I will briefly to those measures which, in my judgment, were most efficient.

The medical treatment consisted in the administration of the tincture of the chloride of iron, the liberal use of the iodides internally, and the local employment of antiseptic solutions, followed by applications of a glycerine solution of iodine and iodide of potassium. The surgical treatment consisted in aspirating the subperichondrial space which resulted in securing a certain amount of bloody serum without producing any change in the size of the tumor. This was followed by very liberal incisions throughout the regions involved, in order to facilitate the thorough removal with a curette of all the morbid material between the cartilage and the perichondrium. The wounds were kept well drained by antiseptic gauze carefully introduced every day by my assistant, Dr. D. E. Seay. This material was examined very carefully by Drs. Shelmire and Smart, of Dallas, and also by Dr. Brooks, of New York, and was found to be composed of elements entirely similar to that of a small round-celled sarcoma or granulation tissue. The following is the report of Drs. Shelmire and Smart:

"The growth sent for examination is composed chiefly of granulation tissue, in some portions infiltrated with pus

cells—inflammatory. In many places, and covering large areas, there are hemorrhagic deposits. Some sections show the perichondrium separated from the cartilage by these effusions of the blood. Both cartilage and perichondrium show inflammatory changes. While there are some portions which are suspicious of a sarcomatous nature, we are inclined to the opinion that the growth is benign."

The gradual and protracted progress of the trouble, together with the microscopical examination might arouse the suspicion of malignant growth, but the other characteristic clinical features of the disease were sufficiently clear to justify the diagnosis and treatment of chronic perichondritis of the auricle, instead of the graver prognosis and more radical procedures belonging to sarcoma. And thus we shall be able to save, with very little deformity, an ear which otherwise might have been sacrificed without cause.

The second case, Mrs. H. of Terrell, Texas, presented considerable interest. The ear first became involved while on a visit in Fort Smith, Arkansas, in August, 1893. It began with swelling and intense pain in the external auditory canal. It developed in connection with acute rhinitis, and this fact, together with the severity of the pain, led the patient to suspect otitis media. But the pain in a few days subsided, without any discharge of any kind from the ear, leaving the patient, however, entirely deaf in the affected ear. She then returned to her home in Terrell, Texas, and was seized with a second attack, more severe than the preceding. She called in her family physician, who lanced the ear repeatedly, from time to time, without producing any marked relief and without reaching any distinct purulent accumulation, but only a slight amount of yellowish fluid mingled with blood. The tissues below and in front of the ear appeared soft and swollen, so her physician, who is a very competent man, lanced in this situation also, but without the desired result. From this latter wound there developed a kind of fistula which communicated with spaces within the substance of the auricle, and around the external opening of this fistula there grew a little mass of granulation tissue. Soon after this second

attack, in which the external auditory canal was the part principally involved, there began two separate little tumors on the anterior aspect of the pinna. I saw the patient for the first time about three weeks after the appearance of these tumors, which had then coalesced, and then presented a large, dark, bluish, slightly nodulated tumor, involving the greater part of the auricle, especially the anterior surface of the concha. The tumor was associated with a considerable degree of pain and tenderness, it was of recent and rapid development, the ear had been previously healthy, and the general condition of the patient was good. Upon a close study of the history of the case, as well as a careful examination of the tumor itself, I became convinced that it was a case of that rare condition known as chondromalacosis, or hematoma auris, as it was called by the oldest writers. Accordingly, I made a free curved incision all along the entire extent of the tumor and including the fistulous opening below the lobule. I then curetted out thoroughly the cheesy gelatinous contents of the tumor and found that there was marked destruction of the cartilage in certain places, which afterward led to the characteristic deformity when it healed. Now, the histological character of that little mass of granulation tissue about the fistulous opening was identical with that of round-celled sarcoma, and a diagnosis of sarcoma would have led either to the entire removal of the auricle, with such other adjacent structures as were involved, or to the absolute withholding of all surgical measures for relief. But the diagnosis of chondromalacosis led to the less radical operation, which preserved the external ear, with slight deformity, it is true, which always follows when there is any positive destruction of the cartilage itself.

PRIMARY EPITHELIOMA OF THE ANTRUM OF
HIGHMORE, WITH HISTORY OF A CASE,
AND TWO CAMERA LUCIDA DRAWINGS.*

BY WENDELL C. PHILLIPS, M. D.,

NEW YORK.

Tumors of the superior maxillary bone have attracted the observation and taxed the skill of surgeons for many years. In the earlier years, all tumors in this region were supposed to originate in the antrum of Highmore—even those that we now know to be primarily located elsewhere. Primary sarcoma of the antrum is not so rare, and it would seem that the earlier observers did not carefully differentiate between sarcoma and epithelioma. A careful research of literature has brought to light a few authentic cases of primary epithelioma of the antrum. Short abstracts of these have been made.

Morel states that epitheliomata may originate under the periosteum or in the spongy portion of the maxillary bone, or they may originate in the antrum, starting in the epithelial layer covering the mucosa, or in that lining the glands. He cites no cases. Reclus reports two cases operated upon by M. Verneuil. Englisch reports one of epithelial carcinoma in the antrum. Verneuil and de Gaetano each report one case, as well as Reinhard.

The case reported by Dr. Phillips, is as follows:

J. G., German, 58 years of age, came under treatment March 7, 1897; is of heavy build and ruddy complexion, weighing 215 pounds. Has always drank beer and light wines, and used tobacco. Six years ago remembers having had pain in the region of the right antrum; several teeth in the right upper jaw which were in a state of decay, three years previously had been extracted. The pain had continued, and one and a half years later an opening had been made into the right antrum through the alveolar

*Abstract of paper read before the American Rhinological, Laryngological and Otological Society, Pittsburg, Pa., May, 1898.

process, through which opening there had never been much discharge of pus or blood. This opening had never closed. Four months ago, he noticed a growth around this opening, which had rapidly increased in size. There was found to be a large cauliflower-like excrescence projecting from the alveolar opening. It was about two inches long from before backward, and three-quarters of an inch broad. It appeared to be a large mass of granulation. Careful examination revealed a pedicle which extended into the antrum, and which bled when touched with a probe. There was a sensation of fulness, with some pressure in the region of the antrum, but no external swelling or bulging, and no severe pain. Transillumination revealed a dark area over the entire region of the antrum. There was no glandular enlargement. The nasal cavity upon that side was quite normal—no polypi, no excessive secretion. The eye did not protrude, and was normal in every way. Believing the growth to be made up of polypoid or granulation tissue, he was informed that an operation would be necessary for its removal. The operation was performed at the Post-Graduate Hospital, March 15, 1897, under ether. The large protruding mass was removed by a cold wire snare, after which a probe was passed into the antrum, which was found to be completely filled with the same kind of tissue. The opening was enlarged by means of curettes and gouges, until large enough to admit the finger, and the entire mass was removed. Hemorrhage was excessive. Special pains were taken to curette every portion of the antrum, and the large opening made it quite possible for this to be accomplished. There was no indication of extension of the disease into adjacent tissues or sinuses. The cavity was thoroughly cleansed with bichloride solution, and carefully packed with iodoform gauze. The patient made an uneventful recovery, and after about six weeks the packing was discontinued and the wound allowed to close up. From this time to March 14, one year after the operation, he has been examined once a month. There are now no visible signs of recurrence, no pain or tenderness, nor glandular enlargement, and no loss of appetite or flesh. His weight is now 218 pounds. The opening into the antrum

is still entirely closed; the eyesight is good, and there is no fetid or purulent secretion.

Microscopical examination of the growth was made by Dr. Jonathan Wright, and it was found to be an epithelioma. That the growth was primarily from the antrum there could be no doubt. Its gross appearance was certainly unlike epithelioma which, together with the fact, that primary epithelioma of the antrum is almost unknown, had led to the diagnosis of a benign growth. Dr. T. M. Prudden also examined the slides, and entirely coincides with the views of Dr. Wright.

Two camera lucida drawings were exhibited, the first showing the region where the epithelial joins the edematous portion of the growth; the second, being a high-power drawing, showing the infiltration at one point of the epithelial cells into the edematous tissue. That there has been no recurrence is probably due to the apparent incipency of the growth, enabling its thorough removal. The polypoid degeneration of the mucous lining of the antrum had, no doubt, existed for a long time. Had there been extension into the adjacent sinuses, especially the ethmoidal and sphenoidal regions, or had the bony walls of the antrum become infiltrated or destroyed, or had there been extensive glandular enlargement, with a cachectic diathesis, the results would, no doubt, have been very different. By thorough removal of the entire mass, however, it is to be hoped that all traces of the epithelioma have been obliterated. And the absence of recurrence after one year and two months have elapsed, would seem to bear out this conclusion. The large opening, allowing such curettment, is also believed to have contributed to the successful termination.

REPORT OF A CASE OF MASTOIDITIS WITH OPERATION, FOLLOWED BY UNUSUAL COMPLICATIONS.*

By H. W. WOODRUFF, M. D.,

PROFESSOR OF OPHTHALMOLOGY IN THE CHICAGO EYE, EAR, NOSE
AND THROAT COLLEGE, AND ASSISTANT SURGEON AT THE ILLI-
NOIS CHARITABLE EYE AND EAR INFIRMARY.

JOLIET, ILLINOIS.

I report the following case of mastoiditis, not for the sake of this condition in itself or on account of the operation, although this subject is always of greatest interest to the aurist, but on account of certain symptoms which began to manifest themselves with considerable severity, twelve days after the operation, indicating the possibility of an otitic meningitis, caused by the suppurative process in the ear itself, or by infection at the time of operating, or from the subsequent dressing of the wound. The further course of the case, however, shows that these symptoms may have been part of a coincident disease.

On March 14, 1897, a railroad brakeman, 38 years old, came to my office, complaining of great pain in the right ear, which followed a cold contracted by exposure, two weeks previously. There had been very intense pain in the ear and region of the mastoid for nearly two weeks.

An examination showed a slight discharge of pus and considerable tumefaction of the anterior mastoid wall, so that the drum head was not visible. There was tenderness to deep pressure over the mastoid, with some edema also, but no fever was present. The ear was cleansed as well as possible, and sterilized gauze inserted for better drainage. Ice was ordered to be applied to the mastoid, and a saline cathartic administered.

The patient was not seen for two days. He then presented himself with all of the above symptoms accentuated.

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ated, and was at once sent to the hospital, where the operation was performed. Some pus flowed from the first incision from a sinus in the soft tissue of the posterior wall of the meatus, but the operation was continued with gouge and mallet until the antrum was reached.

Through this opening the middle ear was washed out with a bichloride of mercury solution 1 to 3000. The wound and external meatus were carefully dressed with iodoform gauze, cotton, and bandage applied.

The patient had a restful night, entirely free from pain or fever. He remained in bed a few days, and then was allowed to sit up and walk about his room. He continued to improve rapidly and there was but little discharge from the wound, which was now being dressed with gauze, without irrigation.

On March 26, at 5 o'clock in the afternoon, twelve days after the operation, I was called to the hospital by telephone and found him with a temperature of 101 degrees, and the pulse 98. Up to this time he had not developed a degree of fever, and had said in the morning that he felt as well as he ever did. He had vomited several times. There was a hyperesthesia of the scalp, so that the hair was painful to the touch.

He complained of pain about the mastoid and side of the head, extending down the neck. He was quite nervous and was startled when the door was opened or closed. The right pupil was slightly dilated.

Fearing that these symptoms were due to infection from retained pus in the mastoid near vessels leading to the lateral sinus, or about the sinus itself, I resorted to careful irrigation with bichloride solution, but there was very little discharge. A cathartic of magnesia sulphate was ordered. On the following morning he was apparently as well as before. No fever, pain or headache, was present. He was kept in bed and as quiet as possible, and did not have any temperature above 100 degrees for three days, although the nervous symptoms remained, with headache and nose bleed at night. Then there began a gradual development of all of these symptoms, the temperature reaching in the evening 100, 101, 102, 103 and 104, with morning remissions.

There was nosebleed every night; at times quite profuse, and very severe frontal headache on the right side, also only at night. There was pain about the ear and in the neck. He became depressed and anxious, but his mind was at all times clear, and there was at no time any motor disturbance.

On the night in which his temperature reached 104 degrees, an eruption was discovered on his face and hands, a few macules and papules. An examination the following day showed the skin of his body and also the scalp involved with macules, papules and vesicles, many of which in twenty-four hours became large pustules. He was in the typhoid state, with low pulse, high temperature. The *tache cerebrale* and *subsultus tendinum* were well marked.

Dr. W. B. Stewart was called in consultation, and on the strength of the pustular eruption, which was now well marked over the entire surface of his body, and enlarged cervical glands, a diagnosis of syphilis was made. Beginning at noon he was given iodide of potash in five grain doses every two hours, and this night his temperature reached only 103 degrees. The next day I put him on the mixed treatment, and his fever reached only 101 degrees. On the next day he was free from fever and his improvement was from this time uneventful. The dilatation of the right pupil lasted for several weeks and was still noticeable when he left the hospital, on April 26, forty days from the date of his admission.

I cannot doubt that some of these startling phenomena, perhaps all of them, were due to syphilis. The symptoms of meningeal inflammation, such as the dilatation of the pupil of the right eye, the hyperesthesia of the scalp, the headache, the *tache cerebrale* and general nervous conditions, we should naturally attribute to extension of the inflammation from the middle ear or mastoid to the meninges, but the presence of the pustular eruption required further explanation. Careful questioning elicited no history of syphilitic infection. The man had had gonorrhea several years before. He was in the habit of smoking borrowed pipes, but never knew of a sore on his lip. During the secondary stage of syphilis there may be high

temperature preceding the eruption, as high as 104 degrees having been reported, with severe headache and nosebleed at night. An actual gumma may have been developing beneath the site of the operation, which would have been sufficient to cause the pain, hyperesthesia, and irregular pupils, or what is more probable, there may have been an acute syphilitic meningitis without any gumma.

I do not believe that the rapid decrease in the temperature was due entirely to the administration of the potash, as the eruption had doubtless reached its height, and at this time the temperature began to subside as in eruptive fevers. All traces of the eruption had disappeared in about one month from the time they were first noticed.

The pupil was slow in becoming of normal size, and the tenderness above the ear lasted for several weeks, and it was not until a month after leaving the hospital that the mastoid wound was healed.

HEMORRHAGE OF THE LARYNX, WITH CASES.*

BY HOWARD S. STRAIGHT, M. D.

CLEVELAND, OHIO.

CASE I.—In February, 1898, an Englishman, aged 37 years, was referred to me for examination of the throat. Fourteen years before coming under observation, and while living in England, he had had a marked expectoration of blood that lasted two or three days and then ceased. For a few months following, he expectorated at times small quantities of blood. At this time his general health was in no respect affected, either before or following the hemorrhage. For seven years he had no recurrence of hemorrhage. About this time he came to this country. Seven years before coming under observation, he had a recurrence of the hemorrhage, and during the next four years he had hemorrhages at intervals varying from a few weeks to a few months. For three years before coming under observation he had been much worse than at any other period of equal length during fourteen years. In December, 1895, after taking a severe cold, he had had a very profuse hemorrhage lasting for a number of days. For three weeks before his visit to me, he had an almost constant slight hemorrhage, being able to raise small masses of blood at almost any time by clearing his throat. This was especially true on rising. The patient was a strong, healthy, rosy-cheeked Englishman. At no time during the fourteen years since the occurrence of the first hemorrhage, had he lost flesh or strength or suffered in any way as to his general health. His family history was perfect. He had never suffered in any way from catarrhal troubles of the upper air passages or larynx. His hemorrhages occurred without having any special reference to having a cold at time of bleeding. He gave no history of other hemorrhages. A general examination revealed nothing abnormal. Observation as to

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the pulse and evening temperature revealed nothing abnormal. An examination of his upper air passages revealed a slight hypertrophic rhinitis only. An examination of his larynx revealed a general engorgement of the blood vessels of the larynx, the epiglottis, and base of the tongue. No bleeding point could be detected, although he had expectorated quite a little blood within a few hours before his visit to me, nor could I detect any bleeding point within the next two months, although he had a number of slight hemorrhages. One Monday morning, after singing at church the night before, he had quite a profuse hemorrhage, but no bleeding point could be detected, although I saw him in the middle of the forenoon. At the first visit I sprayed his throat with a weak solution of nitrate of silver. This treatment was repeated at first daily, and after three or four daily treatments, every second day for a short time. The improvement as to expectoration of blood was immediate. Also the engorgement of the blood vessels was improved after a treatment or two. The reappearance of this engorgement of the vessels was noticeable after having sung in church, and the occurrence of the sharp hemorrhage the following morning. Upon continuance of the treatment as outlined, with rest of his voice and a slight cauterization of the lower turbinated bodies, the hemorrhage promptly disappeared, and after continuing this treatment for three weeks, I gave him a two per cent. solution of nitrate of silver to use as a laryngeal spray night and morning, and told him to report if he had more trouble. For two months he has had no hemorrhage whatever. From his history I believe that his hemorrhages were from the free surface of the larynx or adjoining parts of the throat, and that at no time had the hemorrhages occurred subcutaneously.

CASE II.—In 1895, a man aged 35 years, consulted me as to the origin of hemorrhages—expectoration of blood—from which he had suffered at times for sixteen years. His first hemorrhage had occurred when he was 19 years of age, after a sharp run for a train. From this time until his visit to me he had recurrences of expectoration of blood at intervals, varying widely in length. He had never had a profuse hemorrhage. He had been sent to

Colorado because of his hemorrhages, but with no benefit to his general health—as he gave no history of depressed health at any time during the sixteen years—nor to his hemorrhages. His history gave no evidence of tuberculosis, hematophilia, or troubles similar to that from which he was suffering, in other members of the family. He also had never had other hemorrhages or hemorrhoids, nor did he have enlarged veins of the leg. His general health had always been good. A careful general examination revealed nothing abnormal. He never had any rise in temperature while he was under observation—a period of eighteen months. An examination of his upper air passages revealed nothing abnormal. An examination of his larynx revealed nothing except a bleeding point—a minute ruptured blood vessel, in the anterior third of the left vocal cord; I could watch the blood as it flowed down the cord and into the posterior part of the larynx. I kept him under observation for eighteen months, and saw him a number of times when suffering from hemorrhage. The hemorrhage always came from the vocal cords, and the bleeding point could always be detected. At no time while under my observation, or at other times, as far as his history revealed, had he suffered from a sub-mucous hemorrhage. This patient I treated with a spray of ferric alum. I never could decide if it had any special influence on the case, either in arresting the hemorrhage after it started, or in preventing a recurrence. The hemorrhage usually lasted from one to three days, and recurred at varying intervals. It did not seem to be connected in any special way with taking cold. The patient had never suffered from any throat trouble, outside of the time of hemorrhage. The patient was always anxious as to his condition, and, in spite of my assurance to the contrary, he could not be persuaded that these hemorrhages were of little importance. In the spring of 1897 he went to New Mexico. He went because of his own fears, and not upon my recommendation or that of his family physician. After being in New Mexico for six months he died from a profuse hemorrhage from his larynx. At no time during the six months' stay in New Mexico had he suffered loss of flesh or strength, night sweats, cough or

expectoration, gastro-intestinal disturbances, or any other symptom of tuberculosis.

REMARKS ON CASE I.

Although no bleeding point in this case could ever be discovered, there is no good reason to believe that this case was other than a laryngeal hemorrhage. The profuse hemorrhage from which he suffered in England and the very profuse hemorrhage from which he suffered two years before coming under observation, was undoubtedly due to a ruptured blood vessel. The chances are that the slighter hemorrhages from which he had repeatedly suffered, were due to a diapedesis from the blood vessels. The general engorgement of the blood vessels of the mucous membrane of the larynx and adjoining parts of the throat, the prompt improvement of this engorgement under astringents, as well as the prompt disappearance of the hemorrhages from local treatment only, the reappearance of the hemorrhages after using the voice in singing, all argue strongly in favor of the diagnosis. The absence of disease of the lungs also leaves little room for doubt as to the source of the hemorrhage.

REMARKS ON CASE II.

The detection of the bleeding point on repeated occasions, leaves no doubt as to the diagnosis in this case. The history of the patient before coming under observation, the history after passing from observation, the evidence acquired during the eighteen months while under observation, all substantiate the diagnosis of uncomplicated hemorrhage from the larynx. The manner of death was unusual. Authorities state that there is no case on record of death from laryngeal hemorrhage. I see no other explanation possible in this case, yet I confess that it seems impossible that any one of the laryngeal vessels when ruptured should furnish blood sufficient to cause death. An expectoration of blood in any quantity has its source ordinarily from some part of the pulmonary tissues. It is easy enough to tell a patient that the blood comes from the throat, if upon examination of the chest no marked lesion is found. However, I am very certain that the source of the hemorrhage is pulmonary, even in the ab-

sence of marked lesion. I remember distinctly a case of pulmonary hemorrhage in a boy aged 18 years, who presented himself to me within a few hours after the occurrence of a sharp expectoration of blood. His history for the last few weeks was negative. He had lost no flesh or strength to his knowledge, nor had he suffered from gastro-intestinal disturbances. His evening temperature was 98.5° , and his pulse 90. A careful auscultatory examination of his chest, revealed only transference of heart sounds at the left apex and a patch of subcrepitant rales. I kept the patient under observation for a number of months. During the next six weeks the physical signs at the left apex became more marked in spite of treatment and in spite of great improvement in his general condition, although upon coming under observation he was not conscious of feeling less vigorous than usual. The physical signs in this case were never marked. If, after the first examination of the chest and no marked lesion being discovered, the case had been considered a hemorrhage from the throat and the patient had been given general tonic treatment, or possibly no treatment at all, the case might have been considered as a hemorrhage from some portion of the upper air passages, and not as having had its source in the lungs. I surely have seen many such cases in the last twelve years. Whether the condition of the lungs responsible for such hemorrhage, is necessarily tubercular need not enter into this discussion. I believe that if a patient having expectorated blood in any quantity is watched, and his chest carefully examined at intervals for a few weeks or months after the hemorrhage, time will prove the hemorrhage to have been pulmonary in origin in the great majority of cases, although at the occurrence of the bleeding nothing special in the chest may have been detected. A laryngoscopic examination in such a case is, of course, of great importance, although in the absence of a bleeding point or a general engorgement of the blood vessels of the lower throat, a physical examination of the chest is of no less importance.

Cases of laryngeal hemorrhage are rare. Authorities agree as to this point. That such cases do occur is surely certain. The hemorrhage may be from the free surface of

the larynx from the rupture of a vessel as in one of the cases reported, or it may occur as an extravasation into the submucous tissues. The hemorrhage can also arise as a diapedesis from the blood vessels. The term hemorrhagic laryngitis, under which this form of disease has been designated, until more recent observation, is not a fortunate one. This term presupposes that the hemorrhage occurs as a part of an inflammation of the larynx. This is not the case, necessarily, as the hemorrhages often occur while the patient has no inflammatory condition of the larynx. The disease may occur in patients of perfect health, and, as far as my observation goes, this has been the case. It is easy to understand how a hemorrhage of the larynx might arise in patients suffering from any organic disease of the heart or blood vessels, the lungs or abdominal viscera. I confess, however, that I have never seen a case under such conditions. To decide the determining cause in cases like those reported, is not easy. It seems to me that the explanation is only to be found in some abnormal condition of the blood vessels. Whether this pathological condition of the laryngeal vessels may be produced by any disease of the air passages above the larynx is a question that I think can be answered in the negative. There was no such explanation in the cases reported. The hypertrophic rhinitis was slight, and I attached little importance to its presence. If marked abnormal conditions of the air passages above the larynx had ordinarily anything to do in the etiology of such cases, their occurrence would not be so rare. The patient probably possesses weakened laryngeal vessels with a tendency to rupture, and consequent hemorrhage. This view seems as reasonable as that certain patients should have a tendency to repeated nasal, uterine, vesical or hemorrhoidal hemorrhages.

THE TECHNIQUE OF TYMPANIC INFLATION.*

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(ILLUSTRATED.)

The philosophy of tympanic inflation is to accomplish one or more of the following objects:

- A. To secure ventilation of the tympanum.
- B. To remove abnormal secretions or discharges.
- C. To restore the normal air pressure in the tympanum.
- D. To correct the engorgement of vessels which is due to rarefaction.
- E. To promote the absorption of inflammatory products.
- F. To push out the abnormally retracted drum-head.
- G. To cause massage of the ossicles.

While at the time of each inflation the intra-tympanic air pressure is temporarily more or less augmented, when the drum-head is intact, the ultimate result aimed at is to cause equalization of air pressure upon both sides of the drum-head. The conditions wherein tympanic inflation is indicated are various and may, in a general way, be classified as follows:

A. Conditions of acute inflammation of different degrees, ranging to otitis media acuta, wherein the exit of the middle ear is occluded through inflammatory swelling of the eustachian tube, and the tympanum becomes filled with fluid secretions. Pain, more or less pronounced, is a prominent feature of this condition. While it is plainly apparent that in this form of trouble drainage and ventilation of the tympanum are what we principally desire,

*Read before the Western Ophthalmic and Oto-Laryngologic Association, at Chicago, April 8, 1898.

still the air douche, with intermitting impacts, as is given by Politzerization, frequently does not accomplish the result aimed at, and, if strong enough to be successful in passing through the tube, may materially augment the trouble by driving the imprisoned secretions, which may have become muco-purulent, into the antrum and mastoid cells. In any event, the sudden impact causes discomfort, and often expends its entire force upon the inflated tube without entering the tympanum, hence the results are unsatisfactory. With such an unfavorable showing is it to be wondered at that many otologists decry such practice, and favor an early paracentesis in order to drain the tympanic cavity?

B. Chronic conditions of eustachian tubal catarrh, whereby the proper ventilation and drainage of the tympanum are impaired, being manifested by more or less diminution of hearing, with or without accompanying subjective symptoms.

C. Chronic conditions of non-suppurative middle-ear catarrh, accompanied by more or less drum-head retraction, and an impaired ossicular mobility, varying in degree to actual sclerosis, subjective symptoms being always present.

D. Suppurative conditions of the ear, whether acute or chronic, accompanied by perforation of the membrana tympani.

Tubal catarrh and middle-ear trouble are so intimately related that one almost invariably accompanies the other. In the classification given, B covers those cases in which the tubal condition is the most prominent, and C those cases wherein it is of minor importance as compared with the middle-ear trouble.

I have long been convinced that in the case of compressed air for the purpose of producing tympanic inflammation, the factor of dosage has not been given sufficient consideration. It is easily apparent that in the use of compressed air its physical properties may be varied as follows:

1. Variations in pressure.
2. Intermitting flow with infrequent or rapid breaks.
3. Continuous flow.

4. Unmedicated air.
5. Medicated vapors or nebulæ.
6. Variations in temperature.

With such a variety of physical properties it requires no argument to prove that in application its therapy can be proportionately extended.

As these required differences of pressure and flow cannot be accurately obtained from a hand bag its use is not recommended, except as a makeshift in bedside practice. In order to be able absolutely to control the pressure, I have designed, for office use, an auxillary tank, as illustrated in Fig. 1, which is provided with four valves, and



Fig. 1. Auxiliary air-tank.

has a capacity of about five gallons, which gives all the volume required for any one treatment.

Beyond the auxiliary tank is another and larger tank, not shown in the cut, and containing air at a heavy pressure, of say 40 to 60 pounds. The strong pressure from the primary tank, is secured by opening valves A and B, valves C and D being meantime closed. As the air escapes through the cut-off the pressure is constantly registered by the meter above. By opening the valve C the auxiliary tank can be stored to any pressure required, less

than the pressure of the primary tank, when the valve A is closed. If the pressure in auxiliary tank is at any time found to be too high, it can be lowered at will by opening valve D, which allows of the rapid escape of the excess pressure, the meter meantime constantly registering the pressure remaining. In this way the volume of five gallons of compressed air, at any pressure required, can at any time be commanded, and, in its use, the first impact is no stronger than is the stream following. This tank, with the fittings, was made for me by Messrs. Frank and Kratzmueller, of this city, who have also made the inflater shown in Fig. 2.

In order to medicate the escaping air, when any volatile agent is being used, an improved Butties inhaler can be employed, such as described in a recent number of the *Laryngoscope*.* I have just made a further improvement in this little instrument whereby its simplicity is increased and its size decreased.† The illustration, Fig. 2, shows

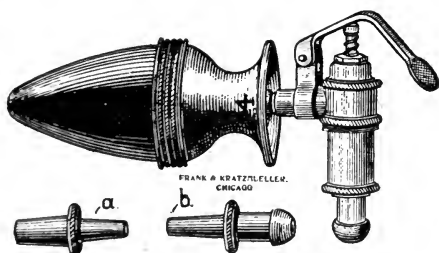


Fig. 2, Inflater-Inhaler ($\frac{3}{5}$ size.)

its use with a cut-off when doing middle-ear inflation without a catheter, but when the catheter is to be used the small extension A is first inserted into the hole in the nasal end, and then lengthened with a very short piece of rubber tubing in order to soften the contact when pressed against the opening of the catheter after it has been properly introduced.

Prior to its use, the remedy indicated is placed upon the sponge which is inside the medicine chamber, and which is best done by dropping some through the opening in the

*"The Evolution of the Butties Inhaler."—*The Laryngoscope*, April, 1897.

†"Either a Pocket Inhaler or a Middle Ear Inflater."—*New York Medical Record*.

funnel-end, thereby avoiding the trouble of unscrewing the medicine chamber. In this way the instrument, after being prepared for use with the suitable remedy and attached to the cut-off, as shown in Fig. 2, can be allowed to hang over the operator's knee, being supported by the tube from the air-tank, and thereby leaving both hands free for the proper adjustment of both the catheter and auscultation tube.

This instrument is made of hard rubber and serves for use with any remedy which will volatilize. The operator will find it convenient to be supplied with several of these inflaters, charged with the different medicines his practice requires, in which case they can be numbered, (see Fig. 2) and thus easily told apart. One of the set should be made of metal, which can if desired, be heated, and with which can be used chloroform or ether. One of the worst defects of the old-fashioned Butties instrument was the small opening, hence I have had the exit holes made of liberal size so that lack of volume will not counteract the intensity, otherwise, with even sufficiently strong pressure, success might not be attained.

For oily remedies and medicines which will not volatilize, I am in the habit of using a hand nebulizer (see Fig. 3) which I have previously described.*

In office practice I use this latter device by preference in most cases wherein Politzerization is practiced, and even at times with the catheter, though, for use with the catheter, the inflater is the most convenient to use. With less than a 20-pound pressure some remedies will not nebulize nicely, hence another reason for my using the nebulizer chiefly in cases in which high pressure is permissible but, when it is elected to use the nebulizer with the catheter, it must first be attached to the cut-off and placed upon a low table within easy reach, until the catheter and auscultation tube are properly adjusted. At my office I have attached to my treatment desk a swinging shelf which is convenient for this purpose. The ordinary nasal tip is also displaced with a reduction tip, (see a. Fig. 3) the distal end of which is guarded with a small soft rubber ex-

*"A New Nebulizing Device."—*Annals of Otol., Rhinol. and Laryngol.*, April, 1897.

tension, the same as in the case of the inflater.

In all chronic non-inflammatory cases, whether suppurative or not, wherein the Eustachian tubes are sufficiently patulous to allow of inflation without the use of the catheter, I believe that Politzerization is all-sufficient. It is pre-eminently the method of preference for children, and in those cases wherein an occluded nasal passage makes difficult the introduction of a catheter. The patient, if at all intelligent, can generally tell whether



Fig. 3. Nebulizer with nose-piece ($\frac{1}{3}$ size); a. Extension for use with the Eustachian catheter ($\frac{2}{3}$ size).

or not the middle ear is reached, though in case of doubt, by use of the auscultation tube, particularly with new patients, the physician can easily determine for himself. If inflation of one ear only is desired it can generally be secured by having the patient tightly occlude the opposite external auditory canal with the finger. While many cases are thus inflated with the greatest ease, others are rebellious, and tax one's patience and ingenuity. In fact, with such cases, the catheter is often resorted to when with either a higher pressure, or by trying a variety of methods, the use of the catheter would not be found nec-

essary. In this class of cases, wherein no active inflammatory conditions are present, I have often used as high as a 60-pound pressure, when a lesser pressure was not successful, during the employment of the following given methods. A 10-pound pressure is the lowest that has proven of service, it having been with a child.

First method. Introduce nasal tip in one nostril, closing the other; next direct the patient to close the lips *tight*, to blow out the cheeks, and swallow *hard*, at which instant, by operating the cut-off, inflation can generally be accomplished if the air pressure is not too low. If not successful, I proceed to the following:

Second method. Introduce nose-piece in one nostril closing the other, and direct patient to open the mouth *wide*, and breathe through same, when, by operating cut-off intermittingly, inflation can be done. This will be found to be a splendid method for children.

Third method. Introduce nasal tip in one nostril, leaving opposite nostril free; next have patient open mouth *wide*, breathing through same. Then operate cut-off and, as vapor or nebula is escaping from free nostril, close same quickly, for a second at a time, repeating several times in a minute.

Fourth method. Introduce nose-piece in one nostril, closing the other, and direct the patient to *cough hard*, or *hark as when clearing the throat*, and simultaneously operate the cut-off.

Through the assistance of these methods I am rarely compelled to resort to the early method of having the patient swallow water.

The intermitting current, so universally employed, (which is erroneously called an air douche, as a douche implies constancy of flow) in addition to aerating the tympanum helps to cleanse that cavity when suppurative with perforation, or else gives passive motion to, or massage of the drum-head and ossicles, when no perforation exists, and thereby tends to counteract the common tendency to retraction, the successive concussions pushing the drum-head out.

Different degrees of tubal catarrh and stoppage in chronic n. s. cases require different degrees of pressure.

Some stand 60 pounds with no inconvenience, and I have no doubt but that selected cases would respond agreeably to 80, or even 100 pounds, wherein inflation with a 60-pound pressure by the Politzer method cannot be secured. I have not used higher than 60 pounds, as that has been the limit of my supply. Of course, it will be understood that the strong current is used only intermittingly by the Politzer method, and that the impacts are both brief and frequently repeated.

The sudden impact of Politzerization in catarrhal conditions of the tube, acts upon the catarrhal secretions in the tube much as wind gusts act upon the falling snow, by producing drifts; hence, after the inflation, the hearing is often temporarily worse, though the eventual result is good, as, by the drifting of the secretion it is made to move, which is the first step toward its eventual escape into the post-nasal space. In this condition the continuous air current will often be found to give far better results than does the intermitting flow, though at times, the two methods can be alternated with advantage. One of the objections made against Politzerization in acute inflammatory conditions is, that the tubal secretions may be blown into the tympanum. This objection will not hold good against the constant air current as, in its use, the return flow forces the secretions from the tube into the post-nasal space. Another objection made against inflation in such conditions, is due to the danger of infecting the tympanum by causing septic matter to enter that cavity. This danger can be further minimized by having the constant current consist of an antiseptic nebula in place of unmedicated air.

In the more acute forms the tube may become stopped up through the hyperemia produced as a primary result of the intermitting inflations, hence, in such conditions, and progressively with the increased degree of inflammation present, the force should be reduced, and the continuous flow substituted in the place of the intermitting impacts. In acute intestinal obstruction the condition yields to an enema which gives constant pressure, while one operated intermittingly aggravates the trouble.

By a continuous flow is meant a flow without breaks for 10 or 15 seconds' time. It is used only with a catheter and

20 pounds is generally the maximum pressure required, though at the earlier treatments, a beginning should be made with a lower pressure of, say, 8 to 10 pounds. Before using the continuous current first intermit briefly, with the auscultation tube in use, so as to be sure that the catheter is properly engaging the opening of the Eustachian canal, and thereby avoid producing emphysema.

The continuous flow is indicated in conditions of tubal catarrh wherein the hearing is temporarily made worse by Politzerization, and in inflammatory conditions of the tube wherein Politzerization causes pain, when the weakest air pressure is employed which is strong enough to do inflation.

For purposes of diagnosis the catheter is indispensable, though for after-treatments its use can be largely dispensed with in chronic cases, by following the Politzer method with the modifications already noted. With the occluded tube, or when the continuous flow is indicated, the catheter must be employed and, in order to be of the greatest value, should have combined in it the properties of small size with large bore, so as to, on the one hand, be easily introduced, and, on the other, allow of the free passage of the air current. This combination is best obtained in the silver catheter.

Conclusions:

Tympanic inflation is indicated in all catarrhal conditions of the tube, with stoppage of same, whereby the ventilation and drainage of the middle-ear is impaired.

Poltizerization is the preferable method:

A. In non-inflammatory conditions wherein the tube is sufficiently patent.

B. In the treatment of children.

C. When nasal deformities render the use of the catheter difficult.

The catheter is required:

A. When Politzerization is not successfully accomplished.

B. For purpose of diagnosis.

C. When important that only one ear shall be inflated.

D. When using the continuous air current.

The continuous air current is preferable:

A. When tubal catarrh is pronounced.

B. When Politzerization produces discomfort.

C. In acute inflammatory conditions.

The intermitting air current is of particular value as a means of causing passive motion whenever there is a diminished ossicular mobility, and should be as strong and rapid as can be comfortably borne by the patient.

Columbus Memorial Building.

A CASE OF RHINO-PHARYNGEAL FIBROMA WITH
PROJECTIONS EXTENDING TO BOTH AN-
TERIOR NARES. (CYSTADENOMA FI-
BROMATOSUM VASCULOSUM.)*

BY HANAU W. LOEB, A. M., M. D.,

ST. LOUIS.

The following case of rhino-pharyngeal fibroma I present by reason of the unusual growth of the neoplasm through both nostrils. Cases have been reported of fibromata extending in their growth through one nostril, into the antrum, into the cerebral cavity, into the pharynx, and into the other accessory sinuses, but so far as I have been able to observe, there is no record in literature of such a tumor growing through both nasal cavities and extending anteriorly to both anterior nares.

A. M., aged 13, first consulted me on October 16, 1892, being referred by Dr. Hugo Summa, of St. Louis. For three months the patient had been suffering from complete nasal obstruction which had evidently developed somewhat abruptly, as the patient gave no history of previous partial obstruction. However, before the total obstruction appeared, she experienced severe headaches which were persistent, and which affected the frontal region. These headaches were not increased by coryza, nor did they seem to be dependent upon a gastro-intestinal abnormality. There was no discharge from the nose; however, until several months before, crusts formed in considerable number and the masses were daily blown out of the nose. The sense of smell had been absent for three months, or since the total obstruction first appeared. There had been no aural or pharyngeal symptoms present.

Three weeks before the patient consulted me, it was evident that there was a growth at the entrance of both anterior nares.

*Read before the American Laryngological, Rhinological and Otolological Society, Pittsburgh, Pa., May, 1898.

The family history was good; the parents being healthy and able-bodied Germans. Previous history was negative.

Examination revealed a large hard growth projecting from each nostril, almost filling up the entire vestibule. The outer wall of each nasal cavity was entirely invisible and the septum could barely be seen. Both portions were slightly movable and bled upon the slightest touch. Mouth, palate and pharynx exhibited nothing abnormal beyond what would result from oral respiration. The post-nasal mirror revealed a round, smooth pinkish mass filling the upper and anterior portion of the rhino-pharynx.

Digital examination disclosed a hard smooth growth, about the size of a walnut, which seemed to straddle the septum, sending one portion through each choana. It had an evident attachment to the vault of the pharynx and was not movable.

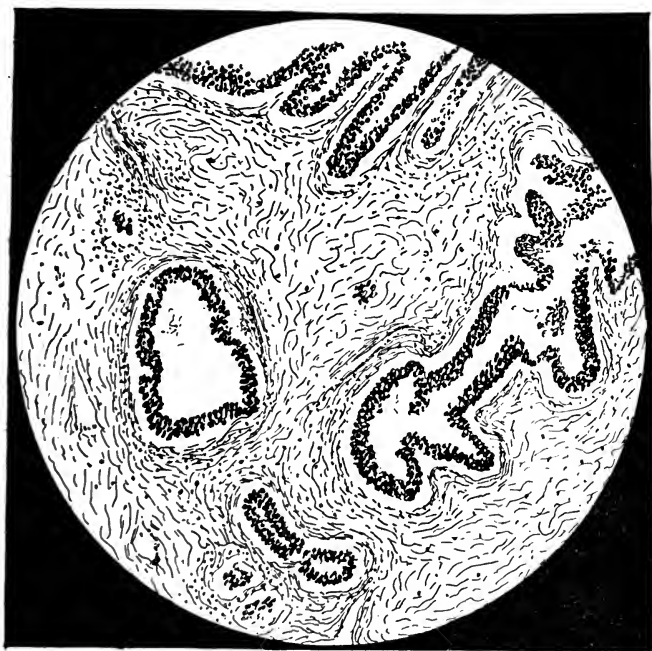
As a venture, and for diagnostic purposes, a portion was removed from the mass in each nasal cavity, by means of the writer's electro-cautery snare. Dr. Summa, to whom the specimen was referred, made the following report:

Sections made from different parts of the tumor kept in dilute alcohol and sent to me shortly after being removed by Dr. Loeb, gave such similar pictures that for the recognition of the histological structure of the neoplasm, the description of one section will be sufficient. It is worth while to mention that there was a most pronounced blood supply in the mucous membrane spread over the new formation. The preparation of the specimen was performed by hardening in alcohol of gradually increasing strengths, and staining with hematoxylin and eosin. The two essential tissues of which the tumor is composed are, first, connective tissue, which in most places is characterized by being exceedingly poor in connective tissue corpuscles—only the tissue around the second chief structure is characterized by concentrically arranged fibrillæ with a greater number of connective tissue corpuscles interspersed. In this place a small cell infiltration is a prominent feature. (See cut.)

Second, the other chief structure represents glands which are characterized first by the large size of their re-

spective lumina; second, by being distinctly branched, and third, by being lined with several layers, sometimes as many as five, of epithelial cells with the cylindrical type predominant.

The relative proportion between the glandular and the connective tissue was such that each formed about one-half of the tumor, so that from the standpoint of terminology, no objection can be made to calling the tumor either fibroma adenomatosum cysticum or cystadenoma fibromatosum, and considering the large number of blood ves-



sels in the more superficial layers of the neoplasm, it seems proper to speak of the tumor as a cystadenoma fibromatosum vasculosum.

Following old lines, electrolysis was first used, with a sponge on the neck or face and a needle inserted into the tumor. Throughout the treatment, the negative pole was used for application to the growth, as it was found that hemorrhage was less abundant after its use than when the positive pole was brought into requisition. This plan of treatment was continued every other day from October 24

to November 4, eight cells of a Waite and Bartlett dry chloride of silver battery being used at first, and later this was increased to twenty. The result of this course was but slight decrease in the size, however, there was evident diminution in the tendency to bleed. It was accordingly determined to resort to excision. On November 6, 20, and 27, and December 4, masses varying in size from a pea to a large filbert, were removed by means of the writer's electro-cautery snare. After this, electrolysis in greater quantity (35 cells) was administered until January 6, 1893, subsequent to which time sections of the growth were removed by means of the electro-cautery knife.

On November 27, 1893, she was discharged with no evidence of any remaining portion of the growth.

Throughout the entire course of treatment, nothing intervened either as sequela or untoward effect which interfered with the line of action.

Status Praesens (Dec. 1897.)—Nasal respiration entirely free and unobstructed. Mucous membrane of left nasal cavity somewhat hypertrophied, though the inferior turbinated is very small. There exists an adhesion about an eighth of an inch wide between the lower portion of the left middle turbinated and the septum. The right nasal cavity shows considerable atrophy and is very capacious; the inferior and middle turbinates are considerably reduced in size. Rhino-pharynx presents no evidence whatever of any growth, being clear of all extraneous masses. Olfaction normal. General health improved.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

A Case of Morbus Meniere Caused by Leukemic Disease of the Acusticus.

185. FERDINAND ALT AND FRIEDRICH PINCLES. (*Wiener klin. Wochenschrift*, 1896, No. 38; *Archiv f. Ohrenh.*, Bd. 43, H. 4.) Man, 66 years old, suddenly attacked by tinnitus and great giddiness; within fourteen days almost complete deafness on right, and complete deafness on left. Died in three months. Section disclosed myeloid, leukemia, marasmus extrmus, typhus abdominalis.

Microscopic examination: Brain showed at place of exit and in the intramedullary course of the roots of the acusticus sometimes moderately, sometimes fully developed, leukemia; the branches of the acusticus slightly atrophic in some places; the ganglion of the acusticus the posterior corpora quadrigemina and the lobus temporalis, aside from meager infiltrations, did not offer special pathological changes.

Examination of labyrinth and middle ear negative.

The writer thinks we have here to do with the first typical case of Menière's disease in apoplectic form, in which as anatomical basis for the process, leukemic affection of the acusticus, was found. *Alderton.*

Some Cases of Pyemia Originating From the Ear.

186. BAJEW, (*Rev. hebdomadaire de Laryng. d'Otol et de Rhinol.*, No. 8, February 18, 1898; translated from the Russian by Jankelevitch.) The author states first what he means by otitic pyemia; acute or chronic inflammation of the middle ear, complicated with thrombosis or thrombophlebitis of a sinus, especially of the transverse sinus. The disease varies according to the different sinuses which are attacked. Extradural and brain abscesses are not in direct connection. The bacteriologic examination of the

blood is a main part in the diagnosis. The author gives eight observations of pyemic inflammation of the sinus, and draws from them the following conclusions:

1. Sinus-thrombosis has to be expected when, together with otitis, we find pain in the course of the jugular vein, fever, and the signs of pyemia, which are chills, sweats, quick oscillations of temperature. The author performed ligation of the jugular vein with good success, but he does not want to enter into this question extensively. The indications for opening the sinus are: If, in acute otitis, notwithstanding free flow of pus, the high temperature and pain along the jugular vein persist.

2. If there are signs of pyemia.

3. If these two indications exist, a normal aspect of the mastoid region does not argue against the operation.

4. The operation is contra-indicated when there are signs of meningitis.

Holinger,

Fractures at the Base of the Skull and Consequent Hemorrhages in the Labyrinth of the Ear.

187. BARNICK, Graz. (*Archiv f. Ohrenh.*, Bd. 43, H. 1.)

Aurists are interested principally in indirect fractures at base of skull which extend to the temporal bone, because it holds the labyrinth, etc.

The petrous bones stand as mighty defenders of the more feeble portions of the middle and posterior cranial fossa. Statistics prove that basal fractures preponderate in the middle cranial fossa; therefore, the plurality of fractures are fractures of petrous portions.

Principally oblique fractures: The so-called longitudinal fissure of the petrous portion is more frequently effected by a blow or fall upon the side. Also frequently occur from a blow on the sinciput. A not unusual fracture is the breach of the roof of the glenoid cavity by the condyle of the inferior maxilla in fall or blow on the chin. In another series, not the roof, but the posterior wall of the articular fossa, which forms the anterior wall of the auditory canal, suffers the breach. These fractures may be confined to place of breach or may spread to the middle cranial fossa.

Mention made in literature of carefully observed fractures of petrous bone with traumatic lesion of inner ear;

but pathologic anatomic changes caused by injury to cranium, in labyrinth, rarely written of. First cases recorded by Voltolini. Patient struck on temple by stick of wood. Fracture at base of cranium; result, purulent basilar meningitis. Man absolutely deaf. Section showed fissure of petrous bone on both sides between fenestra ovalis and cochlea along the basis of the meatus auditorius internus. Left tympanum and semicircular canals filled with blood. No blood in right tympanum, and none could be proved in vestibule or cochlea on right. Second case by Politzer. Blow on occiput. Patient regained consciousness after several hours; total deafness, tinnitus, headache and giddiness. Purulent meningitis in six weeks; death in three days. Section showed fissure through middle of both pyramids and vestibule. Drum membrane, ossicles, and inner tympanic wall uninjured. In vestibule, semicircular canals, cochlea on left, a greenish bloody secretion. In vestibule and superior semicircular canal on right dark red coagulated blood; in inferior, posterior canal yellowish red secretion. Cochlea contained pale red fluid. In region of junction of lamina spiralis ossea and membranacea, a large quantity of formless pigment.

Same year Zaufal wrote of two soldiers who shot themselves in the mouth. Fracture of temporal bone. Indirect breach of temporal bone caused by sudden high pressure in cavity from the great force of shot fired in close neighborhood. In both cases oblique fracture of pyramid with corresponding fissure of the roof of tympanum. In the one case, an oblique fracture of the vestibule; in the other, fracture through the middle of the porus acusticus internus and through the axis of the cochlea. Hemorrhage from ear caused by fissure in superior wall of the auditory canal. Drum membrane uninjured. In both cases, middle and inner ear filled with blood. During the Franco-Prussian war, Moos observed a soldier grazed by a passing shot in region of left ear. Membrane torn and bony meatus partially fractured. Patient died in four weeks of suppuration of right knee joint. Moos found much blood in inner ear, also hemorrhagic infiltration of the perineurium of the nerves lying

between the lamina spiralis ossea. Man totally deaf on that side. Notable: No giddiness during life. First case of injury to labyrinth with fatal result, histologically observed.

Politzer published a second in 1896. December 28, 1895, a hodful of mortar fell upon the head of patient. Unconscious for three days. Recognized members of family two weeks later, but was totally deaf. Gait uncertain; much giddiness. Both membrana tympani injured. Right tympanic cavity contained some exudate. January 31, 1896, sudden high fever, headache, vomiting. Brain symptoms increased. February 6, patient died of purulent meningitis. Section showed gaping fissure in left parietal and squamous bone, which could be traced to the neighborhood of the tegmen tympani. On right, fracture of superior margin of forearm lacerum posterius, running through to internal auditory canal, the cochlea, and cavum tympani. Inflammatory products found in cochlea and vestibule, in the ampullæ and membranous canals, on both sides. Periosteum of semicircular canals thickened by inflammatory proliferations of connective tissue. In different places granular amorphous pigment. Fine, net-like tissue containing cells of varied forms, in the left cochlea.

These relatively new section discoveries may be classified with others made in cases where patients died of different accidental maladies, months or years after a fall or blow, and large fractures of the base were proved after death. Chassaignac reports a case: Patient died in two months after fall, of traumatic inflammation of knee joint. Transverse fracture of petrous bone found. Chester Morris (2) speaks of a case in which callus so preponderated in petrous, as to obliterate carotid. Richet (3), Kundrat (4), Lucae (5), and Habermann (6), all publish interesting cases.

Examinations of internal ear in patients who died a few days or hours after injury, hitherto not undertaken. Explanations of nature of commotion have been purely hypothetical; Politzer's and Schwartz's suppositions and theories.

The writer then speaks of his own work, and says all

the specimens of temporal bone histologically examined, were from patients who had died the first week after accident.

Case I.—Alois B., 31 years old, shoemaker in Graz. January 1896, New Years night, slipped and fell from low piazza; fell on stone pavement, striking occiput. Unconscious. Began to vomit blood in quarter of an hour. Large, strong man. Skin of occiput excoriated. Hematoma size of dollar on place. No bleeding from nose or ears. Left membrana tympani normal; right, deep red, and ossicles visible. No blood in external canal. High fever. Patient died January 7. Autopsy January 8, Prof. Eppinger.

Diagnosis: *Fractura baseos cranii. Hemorrhagiæ extradurales et inter meningeales. Hemorrhagiæ capillares et malacia hemorrhagica corticalis multiplex. Pneumonia dextra.*

Special examination reveals: In the right temporal nearly all pneumatic spaces of mastoid and squamous filled with blood; spongiosa of pars petrosa also. No direct injury to osseous integument of external or internal ear. Drum membrane intact. Ossicles enveloped in blood, which here and adjacent parts showed signs of beginning organization. Medullary spaces of malleus and incus a prey to hemorrhage. Articular ligaments intact. Mucous membrane of middle ear much swollen. In the vestibule numberless cells of connective tissue with pigment. The blood vessels of the periosteum, the maculæ acusticæ tract, the basis of the ampullæ of the inferior semicircular canals all much distended. No alteration in semicircular canal proper. Extensive hemorrhage also in cochlea. Scant hemorrhage in trunk of nervus acusticus and facialis.

Conclusion.—We have here a transverse fracture of the pars petrosa, caused by fall on occiput. The dura mater, the large transverse sinus, the internal as well as middle ear, did not come in direct relation. Hemorrhage in tympanic cavity caused by fissure in roof of antrum mastoideum. Aside from the scant hemorrhage in trunk of acusticus facialis, the extensive bleeding in the scala tympani of the basilar cochlear convolution, in the branches

of the nerves of the vestibule, and in the vessels of the tract of the maculæ acusticæ, are of special pathologic significance.

Case II.—George K., 60 years old, tiller at Graz. June 6, 1896, at 2 p. m., while intoxicated fell from house, 4 m. high, into courtyard. Unconscious. Healthy man. Right forearm broken. Bleeding from right nostril and right ear. Patient died 6 p. m. same day.

Autopsy June 8, 1896, Prof. Eppinger. Transverse fracture 20 cm. long of occiput, close to and running parallel to coronal suture. A second breach, convex before separates the right squamosa.

Diagnosis: *Fractura baseos cranii, contusio baseos cerebri. Edema et venostasis pulmonum bilateral. Fractura synchondrosis sacroiliacæ dextræ.*

Special examination: Right temporal bone removed. The fissure mentioned beginning in the middle of sutura squamosa, and traversing the squama and the superior canal wall, divides also the lateral attic wall and the tegmen tympani. Drum membrane torn down whole length just behind the handle of malleus. Anterior inferior, and inferior canal walls present the form of a sharp triangle, whose base rests at entrance to external canal. The two long processes unite on the limbus of the membrana tympani, go transversely through the floor of the tympanic cavity and end in the forearm lacerum posterius.

Roof of tympanum broken in irregular pieces. At articulation of malleus and incus, fissure descending from squama separated into two divisions; one runs through the superior wall of carotid canal over the sphenopetrosal fissure to sphenoid proper, and is lost in superior wall of right orbit. The second division goes obliquely over the petrous pyramid to the sulcus petrosus superior turns along its posterior wall nearly to its crossing with the large brain blood vessels, and then proceeds along the anterior margin of the sinus sigmoideus to the foramen jugulare.

Aside from the triangular piece in the meatus auditorius externus, the fissures in the temporal are a median and two lateral.

Posterior lateral division formed of fragment of dorsal

squama, mastoid and posterior canal wall. Posterior half of drum membrane with dislocated incus, held in place by connective tissue. Styloid process seen on inferior surface. From within one could see directly into the pneumatic spaces of the mastoid, completely filled with blood.

Second lateral division formed of anterior superior canal wall with anterior quadrant of membrana tympani, in which the malleus was imbedded; the broad root of the zygomatic and the articular fossa of the inferior maxilla.

Median division formed of temporal pyramid proper. Lateral wall of labyrinth plainly visible. Stapes still in fenestra ovalis. Neither facial nerve, jugular vein nor carotid artery torn. Apex of pyramid fractured 10 m. from articulation with sphenoid. Fracture continued anteriorly to median wall of carotid canal, and in fossa jugularis.

Histological: (Detailed description of hemorrhages in all the parts mentioned.) No noted pathologic changes in cochlea.

Grave injury in this case caused by extensive fracture which traversed the posterior, median and anterior cranial fossæ, and ended in the corresponding orbit.

Of particular interest among pathologic changes in inner ear are: Profuse hemorrhage in the vestibule, in perilymphatic spaces of semicircular canals, as well as between the periosteum and the osseous boundary of the utricle and the ampullæ of the posterior semicircular canal.

Case III.—Marie P., 29 years old, carpenter's wife at Graz. July 2, 1896, cleaning windows in intoxicated condition, fell from ladder 3 m. to pavement. Died on the way to the hospital. Autopsy July 4, 1896, Prof. Kratter and Dr. Kautzner

Skin of occiput black and blue. Subcutaneous tissue here full of blood, mostly still fluid. A great deal of blood between dura and pia mater. Upon removal of first, squama of occiput found fractured medianly. Somewhat depressed. From the lateral edges of this fracture, other fractures extended anteriorly and laterally to the pyramid of the pars petrosa, where one branches to the tegmen tympani of the left petrosa, the other to the apex of the

right pyramid about 1 cm. laterally from the basilar process.

Both temporal bones removed for histological observation.

Unimportant pathological changes in right ear. Profuse hemorrhage. Left membrana tympani depressed, blueish red, malleus visible. All pneumatic spaces filled with blood, bones of dark red color. Fracture runs from posterior edge of jugular foramen, obliquely over petrous pyramid anteriorly, and vertically to the inner edge of the articular fossa of the maxilla. It here separates into an anterior and a posterior peduncle, which unite in the fossa ovalis, and completely separates the foramen spinosum as well as the spine of the sphenoid from their connection with the base of the cranium. The fracture separates the temporal in the upper part of the vestibule into a lateral and a median part. The latter comprises only the cochlea with its vestibular division. On the inner tympanic wall the fracture goes through the anterior pole of the fenestra ovalis and through the center of the fenestra rotunda. Facialis not torn. Membrana tympani not injured. Stapes in original position. Above the fenestra ovalis appeared the expanded terminal horizontal semicircular canal, on the superior wall of the vestibule that of the superior semicircular canal. On the posterior inferior wall appeared the common ampullæ of both vertical semicircular canals, and below the opening, the ampullæ of the posterior semicircular canal. The inner mouth of the aqueductus vestibuli could be plainly seen.

Microscopic examination of right ear: Numerous capillary hemorrhages about drum membrane, in middle ear, in medullary spaces of malleus and incus. Extensive hemorrhages in the branches of the ampullæ of superior and horizontal semicircular canal; also in trunks of facialis and acusticus. Pathological changes in left middle ear about the same as in the right, only more pronounced.

Resumé: We have to do with a curved and longitudinal fracture by contre-coup (Berstung). The unfortunate woman fell head foremost, so that the cranium was not only flattened, but the whole weight of the falling body pressed the vertebral column upon the articular process of

the occipital bone and made a "circular basal fracture."

A fall which breaks the bone of the occiput must be of unusual force. This is the reason why all the parts of the inner ear on the left showed such profuse hemorrhage, and accounts for the numerous pathological changes in the right labyrinth, although only the weak apex of the petrous pyramid was broken, and the compact envelope of the ear did not suffer direct injury.

Case IV.—Stephen E., 37 years old, railroad laborer. December 3, 1896, complicated basal fracture. Jumped from car while in motion. Strong young man. Heart and lungs normal. Unconscious. Bleeding from both ears. V-shaped flesh wound below and behind right auricle. Oval piece of splintered bone 5x3 cm. found. Wound enlarged, and several pieces of splintered bone removed. Quite a hemorrhage ensued. Patient remained unconscious. Temperature fell, then rose again. December 4, patient restless; high temperature; bandage soaked with cerebro-spinal fluid. Bandage changed. December 5, same condition and treatment. Patient died at 11 p. m. December 7, autopsy; Dr. Dörner.

Diagnosis: *Fractura baseos cranii complicata. Hemorrhagiæ extradurales et intermeningeales. Malacia hemorrhagica lobi temporal. dextri et lobi frontalis sinistri.*

Right temporal removed for examination. Among many fissures, one principal could be traced, which engaged itself one and a half cm. from the superior pyramid margin of the squama, and transversed the tegmen tympani, the canalis musc. tubarius, to the foramen lacer. anterius. It then descended perpendicularly from the angulus mast. of the parietal to the lateral wall of the mastoid, pierced the base obliquely about 1 cm. under the linea temporalis, and separated the posterior wall of the canal into a superior and inferior portion. It traversed the anterior wall of the canal also, crossed the Glasserian fissure to the maxillary joint, and buried itself underneath the anterior root of the zygoma in the suture which unites the temporal to the greater wing of the sphenoid. Thus the temporal was split into two isolated pieces; a large median and a small lateral.

Lateral comprised: The squama, a part of the lateral

wall of the mastoid, the posterior superior, superior, anterior superior walls of canal, and the roof of the maxillary joint.

Median comprised the petrous portion of the temporal. The fractured mastoid only held to the pars petrosa by the soft parts. Antrum, tympanum, in short, all pneumatic spaces filled with blood. Membrana flaccida transversely torn. Articulation of malleus and incus dislocated, also that of incus and stapes. Upon removal of the lateral piece of broken bone, one could glance directly into the cells of the mastoid, bony meatus, etc.

Pathological changes in cochlea: Hemorrhage in scala of vestibule; other convolutions free. Hemorrhages in the cavities of the modiolus and the trunk of the acoustic.

No notable changes in the endolymphatic cavity of the vestibule nor in semicircular canals. Although there was no direct injury to the internal ear, abundant ecchymoses found in trunk of facialis and acousticus, in the scala tympani of basal cochlear convolution and in the branches of the vestibular nerve. It may not be amiss to ask whether the pathologic-anatomical discoveries made sufficiently account for the complicated symptoms following injury to the cranium.

The changes in the nervus vestibuli would appear to offer a satisfactory solution. (Goes again into detailed explanation of the profuse hemorrhages in all the spaces; its effects upon the brain, consequent disturbances of equilibrium, etc. Says that when hemorrhage (in case of fracture) is slight, patient may regain confidence and steady gait, etc.)

Discoveries do not point to satisfactory outcome of disturbances in hearing. Profuse hemorrhages in cavities of cochlea lead to disturbance of nutrition, degeneration of cell elements, neoplasms, etc., and account for deafness. However, direct traumatic lesion in cochlea cannot always be taken for granted. Shock to labyrinth may also impair hearing. Slight hemorrhages in trunk of acousticus, in Rosenthal's canal, etc., do not cause complete deafness. Degeneration in the delicate fibers of the nervous cochlea must be present.

The frequent attack on the vestibular portion of the cochlea, particularly the scala, is minutely described.

In closing, we hope we may be allowed to add five histories selected from the abundant material of our clinic. Last history of special interest.

Case V.—Rafael V., 33 years old, servant. October 11, 1896, patient intoxicated; fell from wagon. Grave contusion from right temple. Bleeding from nose and ear. October 14, still unconscious. Carried to hospital at noon. Lay one week in deep coma. Pulse languid. A little fever. Constipation. Second week consciousness regained, but no memory. Pupillary irregularities and ptosis of right eye. Much confused. Excitation. Formerly in perfect health. November 8, carried to Prof. Anton's psychiatric clinic at Graz.

Examination: No bone depression or injury on external skull. Right occiput and frontal region very painful, as well as domain of 1st and 2d branch of trigeminus. Ptosis and paresis of all internal and external muscles of eye, supplied by nervus oculomotorius. Trochlearis and abducens free. Right pupil maximally large, no reaction; left moderately large, reacts promptly to light. General reflex on both sides marked. Sight and fundus oculi intact. No disturbance in region of facialis, save nerves of right frontal more injured than left. No other notable symptoms in nerves of the brain. Power of motion and insensibility in trunk and extremities unimpaired. No staggering when walking, or on closing eyes. Patient exhibits psychiatric disturbances; much irritability and confusion. Improved in this respect later.

Examined in aural clinic November 10. Right ear: In canal masses of epidermis with some secretion. Nystagmus appeared after syringing. Superior bony meatus wall dark red; drum membrane depressed, cloudy, dull. In membrana flaccida places covered with shreds of epithelium and secretion; probably perforated. Left ear: Vessels of malleus injected; light reflex shortened, dimple in membrana flaccida. Drum membrane much retracted, dull. Nose: Mucous membrane red; abundant muco-purulent secretion; Mucous membrane of pharynx swollen.

Patient treated by insufflations of iodoform; secretion improved, and ceased entirely in the early part of December. December 16, again examined.

Right ear: In median line of bony meatus on margin of superior anterior wall, a large blood crust; also in membrana flaccida. Drum dull and lusterless.

Left ear: Drum retracted: dull.

Shortly before discharge of patient on February 13, 1897, examined again in aural clinic.

Right ear: After removal of blood crust, the foramen of Rivini presents appearance of a red, convex, transverse growth immediately above the short process. On the line of reflection of the superior to the anterior wall of meatus, is a large exostosis, the skin white and thin. Scar tissue marked in membrana flaccida. *Alderton.*

"Idiopathic" Perichondritis of the Auricle and "Spontaneous" Othaematoma.

188. BIEHL, DR. CARL, Vienna. (*Archiv. f. Ohrenh.*, Bd. 43, H. 4.) Writer believes that hematoma and perichondritis of the auricle bear considerable analogy to such affections of the septum narium, which have recently been brought forward. He, therefore, communicates two cases under observation.

O., Infantry Regiment No. 64. Never had trouble with ears. Noticed on December 20, 1896, swelling of left auricle, which gradually increased; could not account for it; no remembered injury of any sort. His comrades noticed swelling in concha, but O. never complained of fever or pain. December 23, swelling suddenly increased, light, piercing pain experienced. Swelling opened following day, "pure serum, no pus," ran out. Incision made in swelling. The sound felt exposed smooth cartilage. Auricle painful to touch, particularly when pressed close to head. Swelling increased, and suppuration was very profuse. In order to give it exit, a counter incision was made. Probing established a destruction of cartilage. Gauze dressings. Suppuration ceased gradually; pain diminished. Wounds closed; only tough, nut-like swelling confined to concha remained. This was daily massaged. No deformity.

Second case, man; tumor similar in size and location to

Case I. Exposed to cold a few days previously; had felt a draft in auricle, but no pain. Cuticle not altered in color, only moderately distended; slightly painful to touch and pressure. Puncture gave exit to light red fluid mixed with blood. Compresses at first, then massage, and the affection rapidly disappeared.

As for the etiology of these cases, it is not clear. The researches of Virchow, Parreidl and Pollak go to prove that the cartilage of the ear often falls a prey to a wasting process, which results in decay and the formation of cysts filled with serous fluid. Brown-Sequard regularly observed, after section of the restiform body, subcutaneous effusions of blood and even gangrene of the auricle. We must also concede that vaso-motor disturbances have large influence in degenerative processes. Writer believes such theory the only one plausible in cases described. No manifest external cause. Progress and outcome in both cases very rapid and favorable.

Alderton.

The Discernment of Deafness on One or Both Sides.

189. BIEHL, DR. CARL, Vienna. (*Archiv. f. Ohrenh.*, Bd. 43, H. 4.) There is no trouble in establishing traumatic affections in external and middle ear, but it is very difficult to make a diagnosis in injuries of inner ear, especially when some time has elapsed, and symptoms of unconsciousness, giddiness and vomiting have disappeared. The deafness which remains on one or both sides is very difficult to determine, because we have no objective method of examination, and must depend upon the good or evil inclination of subject. If deafness on one side is claimed, it is often difficult to confirm it.

Numberless and wearying examinations were conducted by the writer, but at last he adopted a simple method which seldom fails.

The method:—

The normal ear is first tested.

Then, without the knowledge of the patient, a piece of rubber tubing about 2 cm. long, the width corresponding to the size of the canal, is inserted as far as possible in the canal *of the normal ear*.

The examiner covers the eyes of the patient with one

hand while, with the fingers of the other hand, he plays upon the open end of the tube, so that the lumen is now open, now closed. Whispered words may be spoken by a person chosen, who will often increase or lessen the hearing distance, without allowing the patient to become aware of it. Rubber soles or overshoes should be worn by the observer. The rubber tube gives the feeling of complete closure. The tube must go in closely, and may be greased if necessary. If the fingers are skillfully worked, even wary people cannot continue to feign deafness. That the deafness is feigned is proved when the patient claims not to hear with the tube open.

More difficult to test feigned deafness on both sides. Stratagem must be resorted to; but often the patient has so firm a will that all tests are useless. In such cases it is well to remove the man from military service for a time, but to keep him under surveillance.

It is well known that direct trauma of the skull, without any evident lesion in the structure of the parts, may result in diminution or total loss of hearing. Those cases, where hemorrhage of labyrinth is accepted, are satisfactorily explained; not so in cases of pure commotion. The distinguishing symptoms between hemorrhage and commotion may be contested. (Resumé of different theories.) The future alone can reveal which theory is just and good. However, impaired hearing results from both conditions.

We shall confine ourselves to cases in which deafness is the only established symptom of traumatic neurosis. Itard (*Traite*, 1821,) tells of a patient who experienced total loss of hearing eight days after a slight injury.

Urbantschitsch (*Archiv. f. Ohrenheilk.*, Bd. XVI., p. 183,) observed total loss of hearing on both sides in a boy of nine years, following a light blow with a spoon on the right temple.

Politzer (*Lehrbuch*, 1887, s. 256,) observed total loss of hearing following a blow on the head; gradual return of hearing, until on the 23d day hearing was completely restored during a violent attack of giddiness.

Delie (*Observations cliniques: Revue mens. de Laryn.*, 1886, p. 556,) tells of a patient who received a blow on

the occiput, and at once became deaf and dumb. No headache, no giddiness, no vomiting, no tinnitus. Hearing improved in eight days, but not speech. After two months, patient fell into the water, whereupon speech and hearing were completely restored.

Other cases observed by Badel, Roosa and Gradenigo.

Writer now wishes to speak of a similar case, which he had under constant and rigid observation for 5 months.

Here follows in much detail the history.

Abstract:—

Dragoon S. received in December, 1894, a box on left ear. Said nothing about it, and was not sent to hospital until eight days later, when deafness was noticed. Rupture of drum membrane was established. Tests showed impaired hearing. Sent back to duty, "perfectly cured," end of January.

Middle of February again sent to hospital because of "pretended deafness." And thus he alternated from regiment to hospital, until he was finally condemned to six months' arrest because of "obstinate feigning of deafness." Observations during this period showed that S. sometimes heard ordinary conversation "very well"; could not be surprised when asleep; "slept like a log." Examination of ear negative; tests of hearing useless. S. would not answer questions. Conclusion: "This man is feigning deafness."

On his return to duty, he only appeared to hear when officer shouted in right ear. Condemned to 9 months' arrest, but first to hospital for examination. From that hospital sent to hospital at Vienna for special examination, and so came under writer's observation for 5 months. Patient declared that he was not feigning deafness.

Right Ear: Canal medium; drum membrane atrophic, retracted, transparent; light reflex prominent at base, irregular; margin inflected; superficial scar in membrana flaccida.

Left Ear: Drum membrane transparent, retracted, light reflex only at apex.

Nose: Inferior canal on right distended, inferior mucus membrane slightly swollen, covered with greenish dry secretion. Pharyngeal vault covered with flat granulations and slimy secretion.

The tests for hearing result for whisper and loud speaking always negative. Very loud speaking close to ear perceived on right. No perception for watch, either by bone or air conduction. Tests with tuning-fork of every pitch negative. All questions answered thus: "I don't hear at all in the left ear, in the right a little."

Questions written on blackboard answered unwillingly, and with a stuttering speech, or not at all. Doctors, nurses, patients tried to catch the man off his guard, to wake him out of sleep; he was threatened with punishment; result remained the same. No fever, no headache, uncertain gait, giddiness, nor vomiting. Examination of field of vision showed concentric retraction. Disturbances of sensibility could not be established.

Conclusions.—The man has had chronic catarrh of nasopharynx, probably since childhood. This had run into chronic otitis media, and the consequent changes in drum membrane made it particularly sensible to the box on the ear given in December, 1894.

The catarrhal conditions may have impaired the hearing, but the complete deafness on the left, and the nearly complete deafness on the right, cannot be explained away by reasons of such conditions. In this connection the question: Can we rely upon the veracity of the patient? He has been under observation for 10 months, and has conducted himself in a stubborn, defiant manner, nevertheless, no one has been able to catch him off his guard.

We believe the deafness to be genuine. We believe that a deep-seated affection of the nerves of hearing is the cause of deafness.

From a scientific standpoint we have to do with chronic catarrh of nose, pharynx, tube and middle ear, with complication of neurosis of nerves of hearing.

Organic changes existed; functional disturbances were the result of trauma. Now, was this picture of traumatic neurosis produced by material agents or is it true?

Writer inclines to latter theory. Never any symptoms to indicate organic change in labyrinth. Deafness did not result immediately from trauma, but after a time (psychical incubation).

Mobius advances the theory, in which Gradenigo concurs, that absence of giddiness in hysteria is the only criterion between material change and functional disturbance. Writer considers this too audacious.

Organic lesion of the labyrinth may by gradual development lead to a general condition which presents a perfect picture of traumatic hysteria. Proved by quoting from a case of Brieger's: "Injury to head, unconsciousness and hemorrhage from right ear. With return of consciousness, deafness on both sides, traumatic rupture of membrane on right. In 14 days, improvement on left; 6 months later same conditions, and great depression, objective concentric retraction of field of vision. Typical traumatic neurosis.

Alderton.

Notes on a Case of Extra-Dural Cerebral Abscess of Aural Origin, with Thrombosis of the Lateral Sinus.

190. BRONNER, ADOLPH. (*Lancet*, April 2, 1898.) A boy aet 14, was seized with pain in the ear, and swelling, six days before seeing the writer. On presentation he was partially comatose and giddy; the neck was slightly stiff on the right side; temperature 101° F.; pulse 65; optic discs congested; right membrana tympani perforated; purulent discharge.

Operation.—Opening matoid antrum. The attic was found full of granulation tissue and fetid pus. Some pus escaped when the basilar groove was laid open. The dura was gray and thickened, and the lateral sinus hard and evidently thrombosed. As the thrombosis was possibly non-septic, it was left in *statu quo*, and the boy made an uninterrupted recovery.

Loeb.

Meniere's Disease.—Report of a Case.

191. BROWN, J., and DALAND, J. (*Journal American Med. Ass'n*, Feb. 26, 1898.) This disease occurs more frequently than is generally supposed, many of the milder forms and oft-recurring cases being ascribed to cerebral troubles, or gastric or visceral disturbances. In the milder forms, rest in bed, restricted diet, attention to the excretory functions and the administration of bromide salts usually suffice. Gouty and rheumatic cases require constitutional treatment. In severe cases bleeding, followed by arterial sedatives, is indicated.

Scheppegrell.

Intra-Tympanic Surgery, Especially in Chronic Purulent Otitis Media.

192. BURNETT, CHAS. H. (*Journal American Med. Ass'n*, March 19, 1898.) Of 109 operations by the author, 43 were for the relief of chronic catarrhal deafness and tinnitus, 26 for the relief of chronic tinnitus and tympanic vertigo of catarrhal origin, and 30 for the relief of chronic purulency of the middle ear. Of the 30 cases reported, there was cessation of the discharge in 15, marked diminution in 7, and slight diminution in 8. In those cases in which the discharge did not cease, the physical appearance improved. Alcohol instillations, or alcoholic solutions of boric acid and acetanilid, proved useful in the after-treatment as long as any signs of granulations were present. The hearing improved in 15 cases, was unaltered in 10 and unrecorded in 15 cases.

Scheppegrell.

Report of Two Cases of Suppurating Mastoiditis.

193. BRYAN, J. H. (*Journal American Med. Ass'n*, March 5, 1898.) In spite of the advances that have been met with in recent years in the treatment of mastoid disease, and the serious results which are almost sure to follow when these cases are badly managed, we still find physicians who use poultices to cause an abscess of the mastoid region to break externally.

The first case reported is one of acute suppurative otitis media and suppurating mastoiditis, with abscess extending into the deeper tissues of the neck. The second was one of acute suppurative otitis media and suppurative mastoiditis, with commencing infiltration of the neck. Both cases were treated with the usual operation, and both resulted in cures.

Scheppegrell.

The Technique of the Mastoid Operation.

194. DENCH, E. B. (*New York Eye and Ear Infirmary Reports*, January, 1898.) At the present day no surgeon would consider a mastoid operation complete unless the entire mastoid process had been thoroughly explored. The author prefers to remove the superficial portion of the mastoid by means of the chisel or gouge, and to break down the deeper part with a dental bur. As long as the

opening in the bone is made close to the meatus and below the plane of the superior wall, the operator is perfectly safe. When the antrum is very small, it may lie fully an inch below the mastoid cortex. If the operator is in any doubt as to the advisability of entering to a greater depth, it should be remembered that the antrum can always be found by separating the soft parts from the posterior and superior aspect of the bony meatus.

After the antrum has been opened, the probe should be used to carefully explore the upper and posterior wall of the cavity. All soft bone should be removed by means of a sharp spoon, particular attention being given to the *aditus ad antrum* and to the tip of the mastoid process. After all the pneumatic spaces have been explored, all carious bone removed and necessary vessels ligated, the cavity of the bone should be packed with iodoform gauze, care being taken to carry the packing well into the *aditus ad antrum*, so that the secretions from the middle ear will drain posteriorly.

The operation itself may be considered devoid of danger. Where there is any question as to pus in the mastoid process, it is, therefore, always wise for the surgeon to make an exploratory operation.

Accidents which may occur during this operation, in spite of the greatest care on the part of the operator, are the exposure or opening of the lateral sinus, or the exposure of the meninges in the middle cranial fossa. None of these accidents increase the danger of the operation, providing proper aseptic precautions are observed.

In any case of suspected sinus thrombosis, the neck should always be examined, as jugular involvement may follow occlusion of the sinus in a very short time, if the septic process is virulent in character.

Where caries is limited to the ossicles and to those parts of the middle ear which can be reached by instruments introduced into the meatus, the removal of the ossicles, and thorough curettement, is followed by satisfactory results.

Scheppegrell.

**Surgical Treatment of Acute Inflammations of the
Middle Ear.**

195. DENCH, E. B. (*Jour. of the Am. Med. Assn.*,

March 19, 1898.) The author no longer makes use of local blood-letting in the treatment of catarrhal inflammation of the middle ear. In acute catarrhal otitis media with effusion into the tympanum, incision is necessary. Even without effusion, the author, in the very earliest stages incises not only the membrana tympani, but also the tissue covering the internal tympanic wall, in order to secure depletion of the engorged vessels. A detailed description of the various forms of incision is then given. The author advocates frequent syringing in the after-treatment.
Scheppegrell.

Tests of Tone Hearing with Tuning Forks.

196. DENNERT, HERMANN. (*Archiv. f. Ohrenh.*, Bd. 43, H. 4.) It is very difficult with the tuning forks at our command accurately to test acuteness of hearing for tones of different height by the length of time in which the tuning fork is heard. In the length of time, we have no absolute measure for the relative duration of intensity of two tuning fork tones of different pitch; because the elasticity of the material and the shape of the fork influence its sounding for a greater or less period. Also, the fact that the intensity of vibration in tones of different heights may be mechanically measured, has not yet been put to a practical test. Therefore, the writer desires to speak of a method which he has tested and which he would recommend for further tests.

The writer makes a distinction between absolute acuteness of hearing for tones of different pitch, and a relative hearing for the same.

For the first test, the writer takes a tuning fork which vibrates in the beginning with a positive intensity, and swings it back and forth pendulum-like in an arc of about 20 cm. in front of the external auditory canal, so that the sound penetrates at regular intervals; and continues to swing the fork, once a second, until sound is no longer heard intermittingly. This is the case when the intensity of sound has become so diminished that the duration does not admit of perception. When this is signified by the patient, the diminished sounds should be allowed to enter the canal in greater number, and writer intermits them by holding the fork in front of the ear for one second, and

then removing it a second; the tone will then be perceived anew. The duration in which the tone is heard again is positive for any tuning fork in normal hearing; but in impaired hearing fluctuates in minimum length, *but can invariably be established*. Only those who are partially or completely deaf for tone, are exceptions. It is, however, important, especially for middle and high octaves, to convince one's self that the tones are not perceived in the other or normal ear, and it is, therefore, advisable to close both ears and to test the ear under observation when closed as well as open.

By means of the length of time in which the tone is heard again (called by writer "die Restzeit") we have objective control of the illusions of the patient. By reason of long experience, the writer recommends this method as practical.

To test the relative acuteness of hearing for tones, the writer combines the two methods in this way (already published). Two tuning forks of different pitch swung alternately before the ear in the manner just described, until the tone is lost; when again held in front of a normal ear, both forks will be heard at equal distance. This will also be the case when the hearing is slightly impaired. Should it not be the case, then the forks will not be heard at equal distance in the normal ear. Thus in this simple method, we have an unfailing test for relative acuteness of hearing for tone. When one of the tuning forks is not heard intermittently, another of higher or lower pitch should be chosen. The greater or less difference in distance serves as a measure to determine the relative acuteness of normal hearing.

Now, when such tests are made for diseased ears, the result will be found quite different from that obtained in tests for length of time. It will be found that the number of cases in which relative impairment of hearing was supposed, has materially lessened. Also, in each test, one is quite independent of the material and shape of the tuning fork. For tests in bone as well as in air conduction, the writer tests for length of time, by placing handle of tuning fork alternately in contact with the skull for one second. Point of contact, mastoid near labyrinth; forehead or crown for C², the teeth, etc.

Alderton,

Treatment of Sclerosis of the Middle Ear with Thyroidin Tablets.

197. EITELBERG, A., Vienna. (*Archiv. f. Ohrenheilk.*, Bd. 43, H. 1.) Vulpius obtained good results in sclerosis of the middle ear by the use of the thyroidin tablets, and Bruhl and Alt confirmed his statements after careful observation.

The writer reports 8 cases only; 4 men and 4 women; however, all private patients who had been under observation for a number of years, and remained under observation for months after the thyroidin cure. All were very deaf, suffered with giddiness and tinnitus, had been treated with the catheter, etc., without result. Indeed, all had grown worse as years went by. Ages of patients 20-36 years, one 50 years old; all of good constitution, with little or no heredity history.

The writer uses exclusively the English preparation thyroidin, and prescribes one tablet only each day. When there is the least disturbance of the general system, treatment is discontinued for 2 or 3 days.

Eighty tablets were given in one case, 60 in two cases, 30 only in two cases; in the remaining three cases from 40 to 50 tablets.

Two patients lost in weight while under treatment; 2 gained in weight; in the other 4 no perceptible difference. All patients agreed that appetite was better, and bowels more regular during and after treatment than before.

During the thyroidin treatment patients were treated in the usual way, by catheter, once or twice a week. Such treatment, however, has never led to good results.

To speak of relative permanent improvement, the writer can only claim it in 3 cases. In a fourth, it was merely temporary.

1. A woman under observation for 8 years, and deaf for 7 years previous; suffered much with giddiness and tinnitus; loud speaking only heard close to ear. Giddiness disappeared entirely; tinnitus almost entirely under thyroidin treatment; loud speaking and conversation now heard. The improvement has continued for 3 months.

2. A man, 28 years old, under treatment for 10 years; hearing grew worse and worse; finally patient became

dependent upon lip-reading. Fifty tablets given; patient now hears correctly the middle register at a distance of 2 mt., and in a hall of good acoustic quality can follow a good speaker without difficulty at a greater distance. Improvement has continued, without one relapse, for several months.

3. A man, 50 years old, under observation since 1893. Chronic catarrh of naso-pharynx, tinnitus, deafness on both sides. Grew worse under treatment. In 1896 heard whisper at 40 cm.; 60 thyroidin tablets consumed, when there was great nervous excitement, and treatment was stopped. No improvement. But, in a few days, a change took place, and hearing gradually returned. Today, four months after treatment, patient can hear ordinary conversation at 7 mtr., and enjoys intercourse with his fellow-men. Patient has lost somewhat in weight, but is otherwise well.

This brilliant exhibition proves that results from thyroidin treatment may take place after an interval. The theory advanced by Vulpian that if a 2-weeks' treatment is not successful, further treatment is useless, does not hold good.

The writer, however, cautions against jumping at conclusions, for a temporary improvement may take place, which may be directly traced to other causes.

The writer thinks that, although the results already attained are not exactly alluring, it is well worth the trouble to continue experiments with thyroidin tablets. Careful and not over-hasty observation may lead to valuable conclusions.

Alderton.

Adenoid Vegetation and Deaf-Mutism.

198. FRANKENBERG. (*Atlantic Med. Weekly*, January 29, 1898.) In an examination of 158 inmates of a deaf-mute institute of Prague, 54½ per cent. had adenoids large enough to fill the naso-pharyngeal space. Of 94 persons, 56 were boys and 38 girls. Anomalies of the ear were found in 58 cases as follows:

Plugs of wax, 24; chronic otorrhea with granulations, 14; depression of the tympanum, 12; stenosis of the auditory canal, 1; atresia of the canal, 1; foreign body in the canal, 1; synechia between the drum and internal wall of

the tympanic cavity, 1; hyperemia of the drum, 4; dry perforation of the drum, 3; complete absence of the drum, following otorrhea, 4; polypi, 3; scar in the mastoid apophysis, after peritonitis, 1. Forty-two of these were pathologic modifications, more or less important, due chiefly to chronic suppuration and inflammations. Of these 42 cases, 37 presented adenoid vegetations.

Scheppegrell.

On the Surgical Treatment of Deafness and Tinnitus.

199, GARNAUT, P.. Paris, 1897; forty-four pages. Published by A. Maloine. (Reviewed by Dr. Zeroni in *Archiv. f. Ohrenh.*, Bd. 43, H. 1.) Although operations on the stapes have hitherto been undertaken by few aural surgeons in special cases, and the results hitherto attained have not been such as to establish the value of said operations, the work before us speaks of a perfected method and surprising results. And this is the more astounding, because the broad surgical methods of this energetic French writer are not generally known, and it appears, have remained unknown even to his French colleagues. Even now, it is evident that the writer does not intend to give his experiments to the scientific world. His work may be looked upon as a preliminary statement. The brief representations and the meager histories lead one to think that the paper is not designed for fellow otologists.

We learn briefly, that Garnaut has done fifty-seven mobilizations by retro-auricular method in the stapes since 1895; that whether the trouble was due to sclerosis or chronic suppuration, in nearly every case, permanently improved hearing resulted from operation.

In a few (about ten) cases, we have a bit of history, viz: we learn that before mobilization of the stapes, there was "greatly impaired hearing," and after, "marked improvement," "great improvement," or "thoroughly satisfactory condition." Only once does the writer note: "No marked improvement in hearing," and charges it to the apparatus of perception.

Most important among the indications is the negative results of Rinne's test. The writer makes light of the operation. "The operation is not serious." In four days

(!) often on the second or third day (!!) the patient will be able to resume his ordinary occupation; be it noted, after reflection forward of the auricle, and the free opening of the tract.

The writer is contented with curetting the niche of the oval fenestra, and with the instrumental mobilization of the stapes. Nevertheless, he is particular to emphasize that he has no hesitation whatever in removing the stapes entire. It is well known, he says, that one may remove the stapes in operation for chronic, offensive suppuration, without looking for affection of the labyrinth as a certain result. The writer really only lets the stapes remain, so that a future prosthesis may be established. Writer leaves the invention to his contemporaries, but he has suggested a name, viz., "Prothese Immediate."

Injury to the facial is excluded. Writer refers to Stacke, who did not have one case of paralysis in 100 operated upon. He also asserts that at Halle there have been no injuries to the facial since surgeons have become more familiar with Stacke's method. In this connection, we may observe that Stacke reports three cases of complete facial paralysis out of 100, and that similar cases do occur at Halle now and again; which are, to be sure, not the fault of operation or method, but are due to certain anatomic and pathologic conditions of the temporal bone.

The works of other writers are very briefly mentioned. Panse's new book receives notice in an addendum. It is doubtful whether the writer has read through Panse's book. He expresses satisfaction that Panse agrees with his (Garnault's) view, that the retro-auricular method of operation through the external auditory canal is to be preferred. Where did he get that idea?

The writer promises detailed histories of all his cases in 2-3 years. We shall be curious as to whether he will then be successful in converting others to his optimistic views.

Alderton.

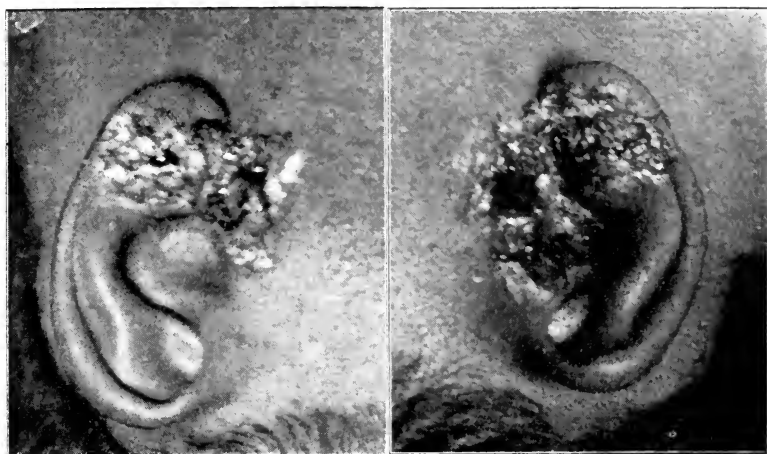
Phenomena Observed at Various Stages of the Operation for Section of the Incudo-Stapedial Articulation and Mobilization of the Stapes.

200. GLEASON, E. B. (*Jour. of the Am. Med. Ass'n.*)
In each of the twelve cases reported no improvement fol-

lowed the mere incision of the drum head and the turning forward of the flap. In no case did permanent injury to the auditory apparatus follow the section of the incudo-stapedial articulation and mobilization of the stapes. In those cases in which tinnitus existed, it disappeared after operation. There was, however, in only five cases a noticeable improvement of the hearing. In all the cases improved hearing to the watch invariably disappeared after a few months, probably as the result of the reformation of the adhesion. The operation is advocated only after other means have been tried. *Scheppepegrell.*

Bilateral Syphilitic Ulceration of the Auricle.

201. GOLDSTEIN, M. A. (*The Laryngoscope*, January, 1898.) The peculiarity of the case reported is that a tertiary syphilis involved both auricles exclusively, with no other trace of a syphilitic lesion or eruption. The patient,



a negro of 25 years, had noticed about seven weeks before applying for treatment, small nodular masses gradually making their appearance on the right auricle, which increased until they were diffused over a large area of the concha and lobule, forming a confluent mass on the anterior surface of the auricle. A few weeks later, similar nodules developed on the left auricle. The infiltration was soon followed by softening and ulceration.

Inspection revealed deep ulceration of the anterior sur-

faces of both auricles, involving lobule, concha, tragus, lower section of the helix, and extending slightly into the meatus on the right side; the left auricle presented the same clinical picture in a slightly milder form. The entire surface of the ulcers were covered with a thick, dry, dirty-brown crust, the removal of which exposed a profuse, yellow, creamy pus, of very offensive odor. After removing all scabs and crust, three deep, well defined, kidney-shaped ulcers with red bleeding surfaces, were revealed on the right side; two ulcers of a similar character on the left side. Although the chain of syphilitic evidence in his case was imperfect, it was corroborated by prompt response to anti-syphilitic treatment.

Scheppegrell.

A New Operative Method to Prevent the Re-Adhesion of the Handle of the Malleus to the Wall of the Labyrinth, Following Synechotomy and Tenotomy of the Tensor Tympani Muscle.

202. GRUNERT, DR. (*Archiv. f. Ohrenh.*, Bd. 43, H. 2, u. 3.) Improvement of hearing and subjective disturbances often reached by tenotomy of tensor tympani muscle, but result only temporary. In a few weeks handle of malleus resumes former position, and functional results are lost.

By the use of Siegle's tube one can convince one's self of the limited movement of the handle of the malleus. But, whether re-adhesion of the tendinous fibers of the tensor tympani muscle takes place also, eludes objective proof by means of existing methods for examination of the ear, and, so far as my knowledge goes, has not been anatomically established by autopsies. It is, however, accepted by the greater number of specialists. In this re-adhesion one has regarded the original functional operation as a failure, and justly. Therefore, every possible means have been sought to guard against such result. Efforts, however, have not been satisfactory, but have rather led to injury, causing secondary infection of the mucous membrane, and suppurations from ear. By a new method I succeeded in preventing the re-adhesion. I cannot speak of brilliant functional results, but I am confident of having solved the technical problem.

Method.—After making two incisions running parallel to the handle of the malleus, and reaching the margo tympanicus, in the anterior, superior and posterior quadrants of the drum membrane, one introduces *Schwartze's* tenotome in the manner indicated by *Schwartze* into the posterior incision and severs the tendon of the tensor. Then, with the same tenotome, one cuts downward between the handle of the malleus and the wall of the labyrinth and severs the adhesion with *sawing* cuts. When one can draw out easily the tenotome, and there is no adhesion remaining, a curved sound is introduced behind the handle of the malleus, and the latter is drawn into the canal until it attains a perpendicular downward direction. In this operation the malleus shows a decided tendency to draw away from the middle, and to approach the margo tympanicus; it is, therefore, advisable to introduce the sound into the anterior incision.

Do we wish to gain a clear representation of the changes in the articulation of the malleus and incus, we may study a fresh temporal bone. The removal of the tegmen tympani affords us a view of the tympanic cavity from above, and we can follow each stage of the operation. We see that the tenotome severs the tendon of the tensor. After this act, the tendons lie so close together that one does not notice a gap, and is only convinced by the sound that there is a solution of continuity. At the moment when the curved sound seeks to bring the handle of the malleus into a more perpendicular position, the superior portion of the capsular ligament of the malleo-incudal articulation stretches, and when the handle is drawn firmly forward into the canal, the ligament is rent; when the handle is finally forced into the desired position we see that a subluxation has taken place, and the head of the malleus has changed its position. The incus remains in its original position, and there has been no change in the long process. Close examination with the magnifying glass failed to reveal the slightest change in the articulation of the incus and the stapes. Between the ends of the severed tendons of the tensor a considerable diastasis has taken place. In our observations of the living, the handle of the malleus remained in the position given it in the operation. It

showed no disposition to return to its former position. With antiseptic tampons the drum membrane healed in a few weeks, and the handle of the malleus stood out in cone-like form above the level of the cicatrix.

Noteworthy that, in the process of the healing, the chain of ossicles remained uninterrupted.

Conclusions.—In all three cases thus operated upon, rapid recovery. Cicatrix of drum membrane; handle of malleus remained in position given; a position which excluded re-adhesion, and led to the probable conclusion that re-adhesion of the severed tendon of the tensor had not taken place.

As for the functional influence of the operation, we see by the histories that in the first two cases there was marked improvement in hearing, which, however, was lost in Case I, when acute suppuration followed cold in the head. No change in hearing in Case III. As the labyrinth was affected, such improvement not looked for. Subjective tinnitus diminished in intensity, and had intermissions. In Case I tinnitus completely disappeared after operation, but came on again with the acute trouble.

We wish to repeat that this operation promises important functional results only under particularly favorable conditions. Only when deafness depends alone upon syndesis of the malleus, and there are no other complications, may we look for results. Unfortunately, we have not hitherto been able to exclude from diagnosis all complications which would render an operation illusory; for instance, changes in the fenestra ovalis, the integrity of which is a condition *sine qua non* of result. Therefore, while we must acknowledge that under the circumstances, these functional operations of the middle ear only savor of an experimental procedure, we hope that, stimulated by our efforts, our colleagues will be disposed to test this operation in cases which appear favorable.

Alderton.

A Case of Bezold Mastoiditis, with Extension to the Posterior Part of the Neck.

203. GUTTMAN. (*Archives of Otology*, Vol. XXVII, No. 1.) The patient, a man aged 21 years, had suffered with left middle ear suppuration for eight years. After con-

tracting a severe cold, the otorrhea became more profuse, and the auricle was pushed forward by swelling over the mastoid process. This swelling extended to and filled out the retro-maxillary fossa toward the sterno-cleido-mastoid muscle to a distance of about 2 degrees from the tip of the mastoid process. On examination the auditory canal appeared to be quite normal; there was no bulging of the posterior and upper wall. The Mt. had in greater part disappeared, and the mucous membrane of the middle ear was covered with small granulations. The mastoid was tender on pressure, and he suffered from pain over the left side of the head, particularly in the occiput.

Operation was advised, and the antrum opened by chiseling through sclerosed bone. The antrum was small and filled with granulations, but no pus found. The chiseling was continued down toward the tip of the mastoid, where the tissue was much softer, and going through the lower inner wall pus welled up, particularly when pressure was made over the swelling below. A probe showed the abscess cavity burrowing toward the cervical vertebræ, deep under the muscles of the neck. This cavity was opened, drained and packed with gauze.

The healing of the wound proceeded without disturbance, otorrhea ceased and headache disappeared.

Two and a half weeks after operation there suddenly developed intense pain in the right hand, with temperature of 103° F.; the hand began to swell, and there developed a deep phlegmon, which was promptly opened. Recovery otherwise was uneventful.

Campbell.

Gravitation Abscess Under Pars Mastoidea and Retro-Pharyngeal Abscess

204. HAUG, Munich. (*Archiv. f. Ohrenh.*, Bd. 43, H. 1.) Young man, 17 years old, good constitution, no trouble with ears. Bad catarrh of naso-pharynx in beginning May, 1895, which ran into otitis media acuta, with perforation of left drum in four days. Treated by doctor with boric acid solution and powder. Suppuration nearly ceased in eight days, but pain in ear returned, accompanied by pain and swelling in mastoid, Complete deafness in left ear. Finally, patient could not turn his head, suffered intense pain and giddiness. Was sent to Haug.

Examination May 28, 1895: A little dry secretion in swollen canal; posterior wall depressed; drum membrane scarcely visible; lead colored and bulged with white shreds of epithelium, etc. Pre-auricular region much swollen and movement of jaw very painful; cannot turn neck, and head is bent as in torticollis, because of swelling and infiltration of mastoid region. Infiltration of mastoid hard, brownish-violet-red, extends from temporal, taking in entire throat region, diffuse about occiput, nearly to clavicle. Entire swelling diffuse; fluctuation only under mastoid; at angle of jaw swollen, painful glands felt; general condition bad; patient rather comatose; temp. 39.9° ; pulse 96-100; great difficulty in swallowing; examination of throat difficult; left palatine and tonsillar region more hyperemic than right; otherwise nothing. Paracentesis done immediately; large quantity of secretion; next day a great deal had run out, but general condition same and pain worse. Temp. p. m. 39.0° ; pulse 92-96.

Operation on May 30, 1895. All the soft parts infiltrated; profuse parenchymal hemorrhage. Periosteum dark but adherent. Corticalis not broken through nor dense. On the removal of same with large hollow chisel (1.2 cm. broad) a very pneumatic mastoid disclosed, full of secretions and granulations. Antrum about as large as a pea, held only secretion. The apex cell holds thick secretion, and with the sound one enters a large pouch, lying posteriorly and inferiorly from the apex of the processus. A second incision was made in the direction of the sternocleido mastoideus and slowly proceeding (infiltration was $2\frac{1}{2}$ to 3 cm. thick) to the fascia, until the posterior margin of the sternocleido-mastoideus was freely opened, letting out the pus gathered in the depth. Notwithstanding this procedure, only a slight remission of fever; then increased rapidly. Patient more apathetic; swallowing painful and difficult; beginning asphyxia. The left half of pharynx beginning at hard palate, enormously swollen; palatine arch, tonsils, and retro-pharynx, formed a firm convex surface size of an egg.

Two days after mastoid operation, another done in the throat. First incision in most prominent part of soft palate; no result; likewise a second in the peritonsillar

swelling. Third was made in a sack like part posterior and inferior to tonsils seemed unsuccessful at first; but on enlarging the same to the depth of over $2\frac{1}{4}$ cm. with a blunt instrument, thick pus ran out. In pus of gravitation abscess of pars mastoidea as well as in that of retro-pharyngeal abscess, was found bacillus pneumoniæ.

General condition improved rapidly. Fever fell to 30.6° . Coma passed off; breathing easier at once, etc. During night considerable pus came away per os; temperature in morning 37.6° . Swelling in throat went down, also external swellings; breathing deep and quiet. Evening temperature 37.6° ; pulse 72. The abscess in throat healed rapidly and perfectly; appetite returned and abundant nourishment taken.

Infiltration and swelling of external parts went away slowly. Bandage changed fourth day after operation; patient could turn head almost without pain. Third bandage twelfth day (every bandage soaked with secretions) when great improvement was noticed. Secretion diminished in superior wound canal; in inferior incision no more secretion after fourth bandage, and wound soon closed. Meatus dry after fifth bandage; drum closed; hearing distance 150 ctm. for whisper. Complete recovery in six weeks; hearing nearly normal.

Remarks: Notable in our case is the extraordinary extent of the hard infiltration as far as the occiput. Probably the semicircular canal protensore tympani played the role of conductor between the middle ear and pharynx.

This sequela to otitis media purulenta is rare, but should warn the practitioner to exercise great watchfulness. Operation should not be too long delayed. A timely incision on right spot may save the life of the patient.

Writer wishes to add a case of acute otitis media with complication of typical torticollis.

Medical student: Acute exudative otitis media in spring of 1896; soon rigors, with high temperature at night, and great stiffness of neck. A colleague regarded case as torticollis rheumatica.

Examination: Drum membrane thickened, but much bulged out, pale red. Mastoid very sensitive at apex, but little infiltration. Neck inclined toward affected side

much pain if turned or bent otherwise. Paracentesis done immediately; thick purulent secretion ran out; symptoms disappeared, even the torticollis, the next day; no more rigors; no further suppurations. *Alderton.*

**Further Contribution to the Clinical and Pathologic Anatomy
(Histology) of Neoplasms of the External Ear.**

HAUG, Munich. (*Archiv. f. Ohrenh.*, Bd. 43, H. 1.)

Case I.—Myxo-cysto-fibroma of the cartilaginous canal. Man, 38 years of age, with tumor in canal. Tumor had grown slowly for four years. Never suffered pain; scanty discharge for six months; hearing never noticeably impaired. Tumor the size of a small plum, projecting from left meatus; color partly pale red, partly purplish red; tumor of stout texture, looks like an old fibrous polypus, which has been exposed to the air a long time; scanty, fetid secretion in meatus; exact location of tumor cannot be determined on account of size.

Operator fortunate enough to remove entire tumor and pedicle with the cold snare. Hemorrhage not important; site of origin of tumor found to be the posterior superior wall of cartilaginous meatus, near the border of the bony canal. The insertion, 4 mm. long, and half as broad, thoroughly scraped; surface of drum membrane cloudy, but intact.

Tumor measures $2\frac{1}{2}$ cm. in length; hard at the base, but elastic at the periphery. When cut in two, a sero-sanguinolent fluid escapes, and tumor loses in volume. Two communicating cavities were opened. Microscopically: The entire tumor is covered with epidermis, which is very thick in parts, and has a very complicated layer of papillæ. The outer layer of epidermis is in great part quite horny. Next to the papillæ in parts, a rather stout, fibrous, subcutaneous connective tissue, with occasional fissures. Cell elements are connective tissue cells. Toward the center of tumor these fibrous filaments separate, and we finally have the type of an edematous fibroma. Here and there irregular deposits of round cell elements; very few vessels. Into this edematous fibroma a type of embryonic connective substance forces its way, containing the elements of new growth. This may be observed in the outer layers, while the inner take on the

character of true myxoma. In these inner radii, we observe cavities, and in parts lymph fissures in these cavities. Two of these central cavities have reached such a size that they may be classified as cysts; filled with thin serous fluid, they lent elasticity to the tumor.

Case II.—Cylindroma of the cymba conchæ: Patient, woman 65 years old, noticed tumor about as large as a small cherry, twelve years ago; partly removed by cauterization ten years ago. A mole formerly on the place. After cauterization, remaining part grew quite steadily. June 1, 1897, tumor considerably larger than a pigeon egg; directly in front of right canal, completely filling the hollow of the auricle; color livid bluish red; tumor divided in three by two furrows; no ulceration. June 3, 1897, tumor removed with knife and scissors. Had grown fast on all sides of the perichondrium; largely attached to the cymba conchæ, and particularly to the introitus meatus. Consistency much softer than at first supposed. Complete removal only possible by incision of the lobule. By means of a few stitches the shape of the auricle, as well as that of the cymba conchæ restored. Complete healing for granulation, June 20.

Microscopic examination shows tumor overgrown along the periphery by thin layer of epidermis; in the basal retro cells much pigment; the layer of papilla only half developed in many places; in others, more marked. Further, a sparse stratum of connective tissue. Then begins the type of neoplasm. Cells are all fine and well defined, of all sizes and forms. The stroma rather meager in connective tissue. All the cells covered with hyaline membrane. Such was the appearance of the tumor through to the excised cartilage. Cartilage not altered; perichondrium rather thickened and infiltrated.

What shall we call it? It is solely a question of endothelioma or a plexiform angiosarcoma with hyaline degeneration: *i. e.*, epitheliomatoid Cylindroma.

But as we do not recognize that proliferation of the cell conglomerates stands in relation to the endothelium of the lymphatic vessels or passages; and that such condition is not pronounced in the arrangement of the cellular trabeculæ, because each individual group is surrounded by a

clearly defined hyaloid membrane, which in many places proceeds from the vessels, so that the adventitia experienced hyaloid degeneration; we may conclude that we have to do with cylindroma. It is often difficult to distinguish histologically between endothelioma and plexiform angio-sarcoma. In the present case, it was only possible under considerable enlargement, which showed the hybrid degeneration of the adventitia to be very pronounced, and the development of the stroma to be unusually weak.

Now, as to clinical prognosis, we believe that the tumor will take a malignant character in probable relapse. Not only does the enormous cell element point to it, but also the weak stroma, and indications of epithelial type in the cellular new formation.

Do we know the origin of this neoplasm? It is probable that it was only a small *nævus*, which was metamorphosed by cauterization.

At any rate, we have to do with a rare neoplasm, and so far as I can recollect, it is the first cylindroma in otological literature, confirmed by histological observation, up to the present time.

Case III.—Large polypus proceeding from the edge of the drum membrane. (Myxofibroma with partial layer of cartilage): Man, 39 years old, discharge from ear for several years. Large movable polypus which filled the meatus, and projected far beyond. Rather hard consistency; color bluish red; secretion scant but offensive. Polypus removed two years previous, but soon began to grow again. Tumor removed with snare; measured $2\frac{1}{2}$ cm. in length, and conformed to shape of meatus.

Base 4 mm. at adhesion to anterior half of drum membrane. Remainder of membrane in condition of granular myringitis. On inflation, visible rounding of drum without sound of perforation; no secretion. Hearing distance, 7 mtr. for whisper. Stump simply cauterized with chromic acid and dried with tampons. No further secretions; myringitis granulosa also speedily disappeared. Ten days later, drum membrane had resumed normal form and color. Point of adhesion showed only a brown spot.

Histological: Tumor reduced to 2 cm. in preparation; presented an appearance of angio-myxo-fibroma. Tumor

covered in greater part with well defined and well developed pavement epithelium with fine formation of rete. In many places, funnel-like involutions with cylinder epithelium. Principal interest centers in two cavities. They are quite covered with a kind of capsular connective tissue, quite intersected by leucocytes. The cavities are almost, not quite, filled with well defined masses, fibrous along the periphery and hyaloid near the center, containing distinct cartilaginous cells.

Several cases of polypus of the ear with osseous or cartilaginous tissues have been published. However, the appearance of cartilage in polypus, especially of the external ear, is rare. As these cartilaginous tissues were found at the basilar end of the tumor, very near the insertion, and surrounded by capsular connective tissue abundantly provided with round cells, we may conclude that such tissues stand in direct relation to the neoplasm, which proceeded from the fibro-cartilaginous part of the annulus cartilagineus; thus, small portions were cut off, and then made prolific by the tissue of the neoplasm; this is indicated by the cystic sequestration as well as by the action of the capsular connective tissue upon the depending cell infiltration. We have before us a comparatively rare polypus which, without intervention of an otitis media purulenta, had its origin in the drum membrane and its adjacent parts. The remarkable size of this polypus is also notable.

Case IV.—Elephantiasis auriculæ dextræ. Lympho-angiofibroma with hyperplasia of the cartilage and perichondrium: Girl, 20 years old. Whooping cough ten years ago, with hemorrhages from the ear, and oozing of blood from the auricle. Since then; the ear has gradually increased in size; no injury, but parts of auricle always inflamed; intermittent pains; no glandular swelling. July 4, 1897: Left auricle normal, very small and delicate. Right auricle measures, length from spina helicis to lobulus, $12\frac{1}{2}$ cm. Across from outer edge of helix to antitragus, 7 cm. Width of lobulus to the inferior end of tragus, $4\frac{1}{2}$ cm. Circumference of entire auricle, 23 cm. Diameter of lobulus region, 2.4 cm., in the superior parts, 1.3 to 1.7 cm. In place of the fossa intercruralis a large

flat promontory. Cymba conchæ still indicated. The color of entire auricle violet-red, particularly the back. Cartilage very thick, and in the neighborhood of lobulus has the appearance of true elephantiasis. On the posterior surface along the periphery several tough, wart-like protuberances. Lymphorrhea cannot be established; however, on lobulus, dilated vessels, from which hemorrhages have proceeded, particularly about the opening for ear-ring.

Histological examination of part of organ removed, shows lymphangioma with cavernoma. Under the very dense epidermis, we come upon a number of enlarged and dilated lymph sinuses.

Next the stratum of connective tissue. The endothelium is also in proliferation. There is preponderating development of the vascular division. Throughout the entire tumor numerous groups of round cells.

Conclusion.—There must have been frequent inflammatory reaction between the perichondrium and the tissues which cover it; probably erysipelas. As a result, there was dilatation of the lymph and blood vessels, and finally enlargement of the entire organ by elephantiasis. By reason of clinical purposes, the changed appearance of the epidermis, and histologic discovery, there can be no question that it was a case of acromegaly.

Alderton.

A Case of Internal Ear Deafness Following Mumps.

206. JOLLYE. (*Archives of Otology*, Vol. XXVII., No. 1.) The author relates the history of a girl aged 13 years, who was convalescent from a mild attack of mumps. On getting out of bed in the morning, she fell down and was unable to arise, owing to severe giddiness. She complained of a diffuse pain over the right side of the head. On examination the pupils were found of equal size, and reacted to light. She had perfect use of her limbs, but in the right ear there was total loss of hearing, shown by tests with watch and tuning fork, both by air and bone conduction. Ocular examination showed no changes in the middle ear.

After an interval of some weeks, subcutaneous injections of nitrate of pilocarpine were tried. The first dose was $\frac{1}{4}$ gr., and the daily dose gradually increased, till on

the tenth day $\frac{1}{2}$ gr. was given. This dose was continued every day for another week, when the patient first stated that she could hear the watch when pressed upon the mastoid. Two weeks later the watch could be heard 2 or 3 inches away from the ear, and in an examination made after an interval of five months, the hearing on both sides was perfect.

Campbell.

Case of Complete Deafness on Both Sides Appearing Three Days After a Fall on the Occiput.

207. KAUFMANN, D. (*Wiener Med.; Vienna Medical Journal*, 1897, 1-4; reviewed by Haug, *Archiv. f. Ohrenh.* Bd. 43, H. 1.) Boy, 13 years old; hearing normal; fell on the occiput during gymnastic exercise; retained consciousness; violent pain in head and great giddiness. Able to return home with escort; there seized with vomiting, giddiness and headache. Boy able to go to doctor's office, and in course of two days symptoms called for bromide prescription; third day boy became totally deaf, suddenly. Examination in the course of a few days revealed in the right parietal bone a fluctuating, painless swelling, about 3 cm. high, covered with normal skin. A three-cornered piece of the os par. 2 cm. long by 1 cm. wide, was depressed 1 cm. Skin of the regio-mastoidea somewhat discolored. Brain and nervous system in normal condition. Examination of ear revealed lack of anesthesia; no sign of injury. Patient had sound perception, but could not hear vowels or words loudly spoken close to ear, nor through earphone. Vibrations of tuning fork could be felt, but neither high nor low tones heard by air conduction. No giddiness with eyes open, but a rapid rotary motion when eyes were closed.

Puncture of the swelling disclosed light red, bloody fluid, which did not run. During the course of treatment the giddiness disappeared; also the swelling by reabsorption; the depression righted itself; the left ear remained deaf, but the right improved, so that from 7 to 9 days after injury, vowels and words could be heard one-fourth mtr. No further improvement attained through treatment with pilocarpin, iodine and strychnin. Tuning fork lateralized on right. Absolutely no perception for high or low tones.

Kaufmann seeks to account for the labyrinthine affec-

tion on both sides by the sudden pressure brought to bear through the trauma, and the spreading of this to the perilymphatic tracts, and thence by means of small consecutive hemorrhages to the parietes of these tracts. In consequence of the hemorrhages, there were disturbances of nutrition, and deafness. *Alderton.*

**Acute and Chronic Caries and Necrosis of the Mastoid;
Pachymeningitis Externa; Epidural Abscess.**

208. KNAPP, H. (*Jour. of the Am. Med. Ass'n.*, March 19, 1898.) The grippe is a frequent cause of acute mastoid caries. In the first case reported, which was one of tympano-mastoiditis, resulting from grippe, there was rapid destruction of the interior of the mastoid and caries of the whole tip, tables and interior. The total removal of the tip in such cases is the best guarantee of a quick and permanent recovery.

The second case, a man of 59 years, was one of acute mastoiditis with extensive caries. Recovery followed the operative removal of a necrosed tip. The third case, a man of 48 years, was one of acute mastoiditis, which was not operated upon and which resulted in death from epidural abscess and meningitis. The fourth case, a man of 35 years, suffered from acute caries of the mastoid and pachymeningitis; and the fifth case, a woman of 25 years, from acute mastoid empyema and perisinusitis with cerebral symptoms. In both of the latter cases, recovery followed surgical intervention.

These, and four other cases reported, form a series of progressive, acute and chronic destruction with extension into the cranial cavity. The case which received no surgical treatment ended in death by epidural abscess, while the other cases in which timely and sufficient operations were performed, recovered. *Scheppegrell.*

Case of Meningitis Serosa Cured by Operation.

209. KRETSCHMANN. (*Munchener Med. Woch.*, No. 16, 1896; review in *Archiv f. Ohrenh.*, Bd. 43, H. 4.) The writer had a case under observation in which symptoms of extensive cholesteatoma of middle ear were connected with other symptoms pointing to intercranial complications. Radical operation disclosed benignant thrombus in sinus,

and was, therefore, supplemented by trepanning of cerebellum and lobus temporalis, without finding the supposed brain abscess. However, the cut in the dura with pressure set free a large quantity of serous fluid. Improvement in brain symptoms after operation. Fourteen days later with cessation of the profuse secretion of liquor cerebrosppinalis, new brain symptoms appeared, more serious than before operation, but after a time disappeared, with the reappearance of the profuse secretion. Later the patient made a complete recovery.

The idea that meningitis serosa may cause these appearances cannot be rejected, but the writer goes too far, when he says there was no doubt about it. One may confront him with his own words, for, a few lines further on he states, that many cases clinically regarded as meningitis serosa, could not be positively confirmed as such, because there was no autopsy, or else there was cure. This view is the more acceptable, but we do not see why Kretschmann's case can be confirmed more than others. The symptoms described may have arisen from the middle ear affection and the sinus thrombosis, and later from attacks on the brain.

That the case took a favorable course and termination after trepanning, although there was no secretion found in the brain, may be differently interpreted, and has been differently explained. But a satisfactory solution can only be reached in the future.

Alderton.

Further Results in Treating the Ears by Massage Methods.

210. LAUTENBACH, L. J. (*Jour. of the Am. Med. Ass'n.*, March 16, 1898.) The author applies the pneumo-massage method, not only in the chronic, but also in acute cases of tympanic and even mastoid disease, at the earliest possible moment. He considers this method as the means of displacing most of the operations on the ossicles, as by it mobilization of the ear structures can usually be produced, and when this fails, it will be the differential factor in selecting those cases in which an operation is to be considered.

(The objection to the various forms of pneumo-massage is, that most of the effect is exerted on the flaccid parts of the tympanic membrane, and but little on the rigid parts

of the ossicular chain which forms the real object of the manipulation. As it is a harmless method, however, easily operated and from which good results have been obtained, it should be given a trial in selected cases.—SCHEPPEGRELL.)

Scheppegrell.

The Relation Existing Between Bright's Disease and Certain Ear Symptoms.

211. LAUTENBACH, L. J. (*Jour. of the Am. Med. Ass'n.*, March 26, 1898.) The author reports two cases in which there were tinnitus aurium, diminution of hearing and irregularity in walking, which the author believes to be due to disease of the kidneys. Matters retained through the defective action of these organs might produce a toxic irritation of the filaments of the nerves of hearing as they spread out in the labyrinth. Structural changes may also be brought about in the nerve filaments through an albuminous exudation with its secondary degenerative changes similar to those produced in the retina in the condition known as retinitis albuminurica.

(In the first case reported, however, the patient was injured about the head by a fragment of an exploded shell, which might more easily explain the symptoms described.—SCHEPPEGRELL.)

Scheppegrell.

Traitement d'Urgence de l'Otite Moyenne Aigue.

212. LERMOYEZ. (*La Presse med.*, 1897, No. 16; *Archiv f. Ohrenh.*, Bd. 43, H. 4.) The writer urges the necessity of prophylactic treatment in cases of otitis media acuta, to be conducted in the following manner:

1. The patient who has cold in the head should be careful not to add to it.

2. Nasal cavities to be antiseptically treated.

3. Quinine to be taken, and also a laxative.

4. Putting drops into the nose should be strictly avoided; blowing the nose should be done with care.

Patients who cannot breathe freely through the nose must receive special treatment.

Three conditions which make an attack of otitis dubious:

1. Passing to suppuration.

1. Retention of pus.

3. Secondary infection through *staphylococcus*. No vesicant on the mastoid; no emollients.

Treatment before suppuration:

1. To quiet the pain, dropping carbolated glycerine (1:10 or 1:20) into the external auditory canal; also these drops, put in as hot as possible, is recommended:

Aq. carbolis (1:100)	- -	10.0
Cocain mur.	- - -	2.0
Atropin. sulfur.	- - -	0.05

Absolute repose for ear; no injections; no Politzerizations.

2. Warm compresses of boracic solution or of phenosalyl solution from 1 to 500 in the auricle or in the region of the mastoid, in order to promote reabsorption. If the pain continue, ice to be applied to the mastoid; carbolated glycerine as hot as possible in the canal; *warmth internally, cold externally.*

3. Analgesics: Chloral as a sleeping draught, but no opium, which causes congestion of the head upon awakening.

4. Derivatives: Saline aperients, hot foot baths, etc.

5. Antiseptic treatment of nose and mouth; gargles and painting the pharynx.

6. In fever or other disturbances repose on bed with head elevated, cool room; in any case the patient should keep to his room for several days, and avoid all risk of congestion.

If, at the expiration of forty-eight hours there is no improvement, paracentesis must be done.

During suppuration secondary infection must be held in check by continued antiseptic treatment of nose and throat. Air should be blown in twice a day and some antiseptic fluid dropped into the canal twice a day; in between, carbolated glycerine and antiseptic gauze. In case the perforation closes too soon, renewed paracentesis.

Alderton.

Observations Made in the Caisson of the New East River Bridge as to the Effects of Compressed Air Upon the Human Ear.

213. LESTER AND GOMEZ, New York. (*Archives of Otol-ogy*, Vol. XXVII., No. 1.) These observations were made on intelligent individuals, who were able to give accurate and reliable statements. With one exception, all were examined prior to their entrance into the caisson. The hearing was tested by means of the watch, the whisper,

speech, Politzer's acoumeter, Galton's whistle, the lower tone limit, Weber's test and the Schwabach or the test for absolute duration of bone conduction.

The observations are given in detail and the following conclusions formulated:

That for aerial and bone conduction the reaction of the tuning forks is markedly diminished, this being especially true of the higher notes.

That bone conduction is affected to a greater degree than aerial conduction.

That this is probably due to a hyperasthesia of the labyrinth or some analagous disturbance, the effects of which are more pronounced on the lower portion of the cochlea.

That the hearing power both for aerial and bone conduction is reduced directly in proportion to the atmospheric pressure.

That the lower tone limit was unaffected, being 16 D.V. in all cases, both before and after entering the caisson.

That there was no lateralization in Weber's test, it being negative in all the cases before and after entering the caisson.

That certain vowel and consonant sounds are heard with difficulty, or not at all. For example: In one case the letters P and G were not heard at all; in another, C and G were not heard; another case failed to hear G and L, and still another failed to hear A and B.

That the hearing distance for the watch decreased in all cases in the ratio of nearly 1 to 20.

That the effects of the aforesaid labyrinthine disturbances persist for varying intervals—from twenty-four to forty-eight hours—in persons not accustomed to the action of compressed air.

That a pressure of one-half an atmosphere is sufficient to cause depression of the drum membrane.

That a pressure of two atmospheres causes marked disturbance of the drum membrane, accompanied with congestion of the malleolar plexus and of the membrana flaccida.

That in some cases this depression is sufficient to cause displacement of the ossicular chain and persistent tinnitus.

That in descending into the caisson—while in the "lock"

—there is great danger of the drum membrane being ruptured, if care is not taken to perform Valsalvi's experiment.

That persons suffering with coryza, a slight cold or congestion of the naso-pharyngeal mucous membrane from any cause, must not attempt to enter the caisson.

That this has been found to be equally true of persons who have been accustomed to entering and re-entering the caisson for years.

That persons affected with chronic ear disease, especially the sclerosing types, must likewise avoid entering the caisson.

That those affected with labyrinthine disease, especially if the semicircular canals are involved, should be cautioned not to enter the caisson, owing to the great danger of vertiginous symptoms occurring while in the "lock."

That the effect on the heart and general circulation is such as to render it dangerous for those with a weakened or diseased circulatory apparatus to enter the "lock" or caisson.

That the action of the heart is accelerated, the radical pulse being increased from 70, or thereabouts, to 120 beats a minute.

That persons of a hyperasthetic or neurotic temperament should avoid entering the caisson.

That the compressed air offers sufficient resistance to prevent whistling, especially the high notes.

That the atmosphere of the caisson, although generally humid, causes extreme dryness of the fauces and all exposed mucous surfaces.

Campbell.

Significance of Lumbar Puncture in Diagnosis of Otitis With Intracranial Complications.

214. LEUTERT, E. (*Munchener med. Wochensch.*, 1897, Nos. 8-9; reviewed by Haug, *Archiv f. Ohrenh.*, Bd. 43, H. 1.) In an unusually exact and interesting account of 11 (12) closely observed cases, Leutert expresses the opinion that lumbar puncture should be exclusive, and should not enter into the diagnosis proper of meningitis; it is more particularly valuable in diagnosis of sinus thrombosis alone, or the same in connection with brain abscesses. The 11 cases (a 12th added later) in Schwartz's clinic, in which lumbar puncture was done, are thus classified: 2

simple suppurating meningitis, 2 meningitis purulenta with sinus thrombosis, 1 meningitis purulenta with brain abscess, 1 epidemic meningitis, 1 meningitis serosa, 1 sinus thrombosis, 1 perisinus abscess, 1 sinus thrombosis with capsular meningitis and brain abscess, 1 sinus thrombosis with brain abscess. No therapeutical effect was attained, and *a priori* not expected. (1 Exitus five minutes after the puncture.) However, the negative result of the puncture enabled Leutert to deduce many truths in confirmation of his theory, viz., that (suppurating) meningitis must be excluded when there is clearly ever increasing fluid matter, together with total or nearly total absence of polynuclear leucocytes. This is of unusual value in two-fold diagnostic relation; we may exclude meningitis in cases already diagnosed as sinus thrombosis or brainabscess and thus do the necessary operation earlier than would be possible otherwise. And again, in steady high fever that may be traced solely to inflammation of the ear (acute inflammation of the tympanum excepted) we may with certainty make a diagnosis of sinus thrombosis. Thus, in lumbar puncture, we possess a diagnostic agent of undoubted value.

Alderton.

Periauricular Abscess in Furuncle of the External Auditory Canal.

215. LEUTERT, ERNST. (*Archiv f. Ohrenh.*, Bd. 43, H. 4.) That large abscesses may form in furuncle of the external auditory canal, break through the posterior wall and appear in the mastoid is well known. Writer thinks sufficient importance has not been given to the probability of such abscess being mistaken for affection of the mastoid. Differential diagnosis not easy in such cases. Writer believes such breaking from furuncle to mastoid region is of more frequent occurrence than supposed; and also the furuncle breaking through the inferior wall of canal may result in abscess of the fossa retromaxillaris.

In four of Leutert's cases, furuncle broke through the thin connective tissue joining the osseous and cartilaginous canal. This place, as well as Santorini's fissure, particularly favorable. Diagnosis of empyema of the mastoid was held to until the opening at the apex proved that a mistake had been made. Writer thinks that one will now

concede that differential diagnosis between furuncular abscess and affection of mastoid is not easy. Fortunately, the matter is not of any great practical significance. Should a mistake be made in diagnosis, light will be vouchsafed in operation; and, if at the same time the mastoid be diseased, the patient will suffer no injury. The mistake may, however, lead to grave consequence, according to circumstances. Particularly when the true nature of the case being unknown, case may be used as a counterproof to writer's contested theory; that fever which holds for several days in affection of mastoid invariably points to affection of sinus. Temperature in cases cited ran up to over 39° , which writer has never observed in acute empyema of mastoid without sinus complication.

It therefore appears that furuncular abscess demands a particular position in the pathology of the ear.

Now, what are the distinguishing symptoms of value in differential diagnosis of furuncular abscess and mastoid affection? First, the situation of the abscess. Those which break through the posterior wall of the canal to the mastoid may be recognized because the redness and swelling will be most pronounced in the region of the primary collection. The groove between the auricle and the mastoid will be found at the point of exit, or when there is none above the plane of the mastoid. Also, the breaking through the inferior wall to the throat may be distinguished in this wise: The principal swelling will be found in the fossa retromaxillaris. The principal swelling of the gravitation abscess which has its origin in the mastoid, will be found above the sterno-cleido-mastoideus. There are rare cases in which such an abscess proceeding from the mastoid may extend to the parotid, and then the situation makes differential diagnosis impossible. Great pain in the auditory canal when the furuncle has not yet broken will naturally facilitate diagnosis.

A very important diagnostic agent is the fever. It is much higher than that which accompanies subperiosteal abscess, proceeding from the mastoid. It may be distinguished from the fever which is a symptom of perisinus abscess, and which generally falls within twenty-four hours after abscess is emptied. In periauricular abscess, fever continues for several days, and even rises,

Another valuable diagnostic symptom is the frontal headache, which is, perhaps, caused by the high fever. Nevertheless, it has a certain value in differential diagnosis, because violent headache is rare in pyemic fever, and in affections of the mastoid and epidural abscess, it is experienced in the corresponding side and not in the forehead.

In doubtful cases, the contents of the abscess seem of value to the writer. Both the abscesses in the fossa retro-maxillaris contained a little fluid pus, but principally grayish fibrinous masses of dead tissue. The contents of the furuncular abscess of the ear was, to be sure, principally pus, and so it would appear that the character alters. But the contents above described would make the diagnosis sure, for such masses would not be confounded with the necrotic particles of lymphatic glands or other tissues found in other abscesses.

The negative discoveries in the mastoid would appear to be of especial value in diagnosis. However, differential diagnosis between furuncular abscess and abscess of the lymphatic gland induced by inflammation is often difficult. Whether bacteriological examination (which writer, unfortunately, did not make) would be valuable, is doubtful. In one case of periauricular abscess, mastoid intact, writer found staphylococcus albus in pure culture, which coincided with Schimmelbusch's experiments. In this case, also, the temperature was high, 39.1° two evenings in succession, when incision was without result; two days after successful incision, fever gradually fell.

Writer feels that the symptomatology which he has sought to present has too slender a foundation to claim acceptance as a firmly established fact. He hopes, however, that this communication will serve to awaken interest, and he deemed this publication necessary because of his theory of otic pyema, already published.

Alderton.

Contribution to the Causistry of Foreign Substances in the Tympanic Cavity.

216. LIPPERT. (*Archiv f. Ohrenh.*, Bd. 43, H. 2-3.) Patient, an adult; ignorant of entrance of foreign substance into ear. Chronic otitis media, swelling and red-

ness of regio parotidea dext.; profuse fetid suppuration from ear; caries of anterior wall of canal. After incision of the gravitation abscess in the parotid region, fever disappeared, but paresis of facialis appeared. Eight days after operation, grave general symptoms (sensorium benumbed; pulse 120, temperature 37.3°) myosis, swelling and pain in ball of thumb. Later, redness of left knee joint, left planta pedis, left shoulder joint, right elbow, right hip, sacrum; color of these places resembled petechiæ. After the petechiæ had disappeared, about one month after the incision, *a broken bit of a match, about 1 cm. long*, (very fetid) came away in process of cleansing; shortly after another piece 29 mm. long, came away. Then slow recovery; cessation of suppuration; cicatrix of right drum membrane. Four and a half months later, severe pains in right ear, suppuration from right ear, gravitation abscess on ascending ramification of maxilla; five days later, sudden death.

Post-mortem: No brain abscess, but acute meningitis. Abscesses on the inner surface of the M. sterno-cleido-mast., communicating with cavum tympanum. No foreign substance in tympanum, no perforation of tegmen.

Alderton.

Chronic Suppuration Otitis Media with Extensive Destruction of the Mastoid Process and Temporal Bone.

217. LOMBARD. (*Ann. des mal. de Lar., d'Oreille du Nez, et du Phar.*, March, 1898.) A man of 26 was suffering from suppuration of his left ear. No external symptoms over the mastoid could be found. Yet headache, fever, deafness for whispering, granulations in place of the drum membrane, were accepted as indications for a radical operation. This was done December 12. February 2, the patient was discharged with "almost no" suppuration from his ear.

Holinger.

What Can be Accomplished by Treatment of the Eustachian Tube.

218. MARSHALL, G. M. (*Jour. of the Am. Med. Assn.*, March 19, 1898.) Stenosis of the eustachian tube is responsible for a very large majority of cases of chronic tinnitus aurium, as well as chronic deafness. The systematic use of bougies in the eustachian tube is of marked

benefit in these cases. The bougies should be antiseptically cleansed and smeared with a three per cent. ointment of lanoline and nitrate of silver, and should rest from twenty to thirty minutes within the eustachian tube, the application being not oftener than twice a week. The bougie should be measured, to see that it does not advance more than 33 millimeters. On account of the delicate nature of the eustachian tube, this method should not be practiced by careless or unskilled hands.

Scheppegrell.

Diseases of the Mastoid—Their Course and Treatment.

219. MILBURY, FRANK S. (*Jour. of the Am. Med. Assn.*, April 30, 1898.) After referring to the anatomic features of the middle ear and mastoid, the author states that primary mastoiditis is very rare, only a few cases having been reported. Secondary periostitis, however, is quite frequent and is due to acute chronic middle ear suppuration or necrosis, the process extending outward from the tympanum until the mastoid cells are reached. If operative measures, such as a brisk purging, ice bags, Leiter's coil, etc., are not successful, operative interference must be resorted to. The following are the indications laid down by Politzer and others for operative interference:

1. Painful inflammatory infiltration of the covering of the mastoid process, especially if an accompanying narrowing of the meatus, or obstruction of the tympanum by granulations renders it probable that a septic condition exists in the mastoid process. The operation becomes imperative when there is high fever and signs of meningeal irritation, and when the symptoms in the mastoid process have repeatedly occurred and resisted all antiphlogistic treatment.

2. Spontaneous pain in the mastoid process, increased by pressure and accompanied by bulging of the posterior-superior wall of the meatus.

3. Persistent or occasional remittent pain in the mastoid process, with marked tenderness, even if there be no swelling of the external integument, and no apparent obstruction to the escape of discharge from the tympanic cavity.

4. When cholesteatoma existing in the tympanic cavity

cannot be removed, or after its extraction with the malleus and incus the condition is not improved by careful irrigation.

5. Fistulas in the mastoid region and gravitation abscess below it.

6. Extensive caries and necrosis of the posterior osseous wall of the meatus.

7. In all cases of middle ear suppuration, during which symptoms of meningeal irritation or of incipient sinus-phlebitis make their appearance.

8. Continued septic suppuration in the attic, the symptoms remaining unchanged after removal of the malleus and incus, and several months' energetic treatment, even if there are no general symptoms excepting an offensive otorrhea.

9. Pain in the mastoid process developing in certain rare cases of connective tissue hypertrophy, in osteosclerosis, and in osseous scars after the healing of a mastoid operation.

The usual mastoid operation is then described in detail.

Scheppegrell.

A Case of Antro-Tympanic Disease and Bezold's Mastoid Abscess, Complicated with Extra-Dural Abscess.

220. OUSTON, T. G. (*British Medical Journal*, Jan. 22, 1898.) Patient was a well developed girl of 15, giving a history of discharge from left ear for 12 years, with pain in the head, and for last two months gradually increasing swelling in the neck, which was fluctuating and in places red and edematous.

An incision was made behind the sinus of the ear, giving exit to a mass of pus and blood-stained debris. The bone separating cavity from mastoid antrum was fairly firm, and on cutting through this a second pus cavity was found, not communicating with the first. A small loose sequestrum of bone was removed from above and behind antral opening, revealing a cavity between the dura mater and the bone. Nothing further was done for fear of carrying infectious material into the cavity into which a drainage tube was inserted.

Ten days later patient complained of "seeing double," and an examination revealed a complete paralysis of left

external rectus muscle, semi-dilated, slowly reacting pupils, slight left facial paresis, almost complete paralysis of left arm, and absence of patellar reflexes. Added to these was an intense neuro-retinitis of both eyes, rather greater on the left side.

Patient improved gradually, and one year later the left eye showed a deterioration to distant vision of 6/24, a partial atrophy of the optic nerve, and a few white patches in the neighborhood of the papilla. There was also a slight otorrhea. *Loeb.*

The Pathologic Changes in the Middle Ear Occurring During Measles, and the Clinical Features of These Cases.

221. PFINGST, A. O. (*Pediatrics*, Vol. V, No. 3, 1898.) A girl of 6 years had passed through an ordinary attack of measles, when suddenly she developed high fever. Three days later, as the child complained of slight pain in the ear, this was examined and the drum found to be red and bulging, spontaneous rupture taking place, with a free discharge of pus. Under antiseptic irrigation the child made a complete recovery.

From a bacteriologic standpoint, it is probably that infection of the ear originates from the naso-pharynx. From 44 autopsies made by Tobeitz, Habermann and others, we learn, first, that severe cases of measles rarely if ever run their course without involvement of the middle ear, probably of both sides; second, that the inflammatory process usually runs its course without subjective and often without objective symptoms, and only now and then leads to spontaneous perforation of the drum.

Scheppegrell.

The Treatment of Chronic Suppurative Otitis Media.

222. PIERCE, NORVAL H. (*New York Medical Journal*, March 12, 1898.) After referring to the pathologic process which induces suppuration in the tympanic cavity, comprising the micro-organisms involved, their routes of invasion and the conditions which prevent their escape and destruction, the author states that the first condition met with in chronic as well as acute otitis media is drainage. Injections are rarely needed; the canal of the ear is cleansed by means of sterilized cotton pledgets, and then packed with iodoform, sublimate or boric gauze. A

3 per cent. nosophen gauze also proves a non-irritating and antiseptic packing, and has the advantage of not being decomposed by high degrees of heat. The dressing should be changed daily. Few cases demand irrigation, and where the discharge continues after a month's treatment by this method, operative interference is usually required.

Scheppegrell.

Actual Status of Our Knowledge of Rarefaction of Air in the External Meatus, and of Massage of the Ossicles.

223. POLITZER. (*Ann. des Malad. du Lar. de l'Oreille, du Nez et du Phar.*, April 8, 1898.) Politzer states first some historical facts, including an account of some experiments made by Moos, Bezold and himself. Finally he speaks of Delstanche's refractor.

In moving the membrane and the ossicles there is a change of pressure in the labyrinth not exceeding 1 mm. of mercury. The advantage of rarefaction of air in the external meatus is reported in diagnosis of changes of the membrane, adhesions, scars, atrophies, adhesions of the ossicles. It helps the diagnosis of suppurations of parts of the attic. If the pus is very thick, or if from the rear upper part great quantities of pus appear, the diagnosis of suppuration of the mastoid cells must be made. Even hidden polypi may be drawn into the field of vision. In a case of extradural abscess, where at the operation the diagnosis could not be made, and where, after healing of the wound, the symptoms persisted, the location of the pus was found with this method. The suction is of great benefit, when the tympanic cavity is divided by scars, and air in politzerization cannot enter into every part. In a number of catarrhal affections, and even in nervous deafness, it was of great service, as well as in subjective noises, dizziness and even in some cases of Meniere's disease and aural epilepsy.

Compression of air in the external meatus may be used as a diagnostic help, as in perforations of the tympanic membrane, the "noise of perforation," or rales in accumulations of fluid may be heard with a rubber tube inserted in the nose. The mucus or pus, after paracentesis, may be forced from the middle ear through the tube into the naso-pharynx by inserting a Politzer bag into the ex-

ternal ear and slightly compressing it. In the final chapter the author treats of the massage of the tympanum; that is, of alternate compression and rarefaction of the air in the external meatus. He explains a number of indications and diseases where massage is of great benefit. They do not materially differ from what we know from other authors. He adds the new use of massage in chronic suppurations of the middle ear, and as far as the most distant cells.

At the end of the interesting treatise he recommends care against too frequent use of this beneficial method.

Holinger.

General Pathological Relations of Middle Ear Affections in Early Childhood.

224. PONFICK. (*Berliner Med. Woch.*, 1897, No. 38; *Archiv f. Ohrenh.*, Bd. 53, H. 4.) Stimulated by observations made upon his own children, in whom certain disturbances of the digestion appeared to be connected with and dependent upon suppurating inflammations of the ear, the writer undertook in a series of systematic sections to make a particular study of the general pathological influences of affections of the middle ear in childhood. He speaks in his work of sections from 100 children under 4 years of age; nearly three-fourths of the number belonging to the first year of life. Of 6 children, who had not suffered infectious processes (congenital weak heart, dermatitis, etc.), only 1 had a normal tympanum. The 5 others had otitis purulenta; 75 children who died of acute infectious diseases; 65 of the number classified thus: 1, acute infectious dermatitis (furunculosis, erysipelas); 2, diphtheria; 3, scarlet fever; 4, inflammatory infections of the lungs; 5, purulent meningitis; 6 and 7, gastroenteritis infantum. Only 7 of these 65 children had a normal tympanum; 58 had grave inflammations, the exudation sometimes serous, but generally pus (8 times one side, 50 times both sides). Very interesting are the contributions to the intermittent relations between gastroenteritis and pneumonic collections made prominent by writers. The writer asserts that both disturbances of the respiratory as well as the digestive organs may arise or may shortly follow the one or the other, from a common source,

namely, the ear. Ten cases, which could not be classified in these groups, and in which the autopsy gave negative result, aside from a slight swelling of the spleen, had important changes in the ear alone. Ponfick comes to the conclusion that sucklings who live in doubtful outside conditions of life, run as great a risk through purulent inflammations of the middle ear, as through inflammation of the fauces, tonsils, or even laryngo-tracheitis and bronchitis capillaris. Among 19 children who died of chronic infectious diseases (16 tuberculosis, 3 syphilis congenita) only one had a normal tympanum. Among the 100 children only 9 had normal tympana. Changes in the mucous membrane were most marked in the region of the ostium tympanicum tubæ; the exudation in the plurality of cases was of the nature of pus. Ponfick could not establish a regular connection between the nature of the exudation, and the other bodily disease. He thinks that just in this connection instability is the rule. The exudation was bacteriologically examined in isolated cases only, and such examinations conducted several hours after the post-mortem, have not the value of a fresh examination; what will result from a tympanum so filled with secretion? He states that not in 5 per cent. of all ears thus examined is there perforation of the membrana tympani. Further, he asserts that such otic affections are to be accepted not only as local, but as general diseases. Continually do the toxic products of the otitis enter the plasmic masses. This acceptance is justified by the general feverish condition, the frequent enlargement of the spleen, the symptoms of degeneration, particularly in the kidneys and liver, intestinal disturbances, etc. Among the methods by which spontaneous exit may be afforded the pus, he gives high rank to the eustachian tube. At the same time he recognizes the pathological conditions under which such a method for the exit of pus cannot be warranted.

Alderton.

Trephining of the Mastoid for Mastoid Disease.

225. PRINGLE, J. K. (*British Medical Journal*, Jan. 15, 1898.) The details of this case are not different from those of the usual form of mastoid abscess. After trephining the mastoid antrum and cells, and establishing

free drainage, the temperature which had ranged from 100° to 103.2° F., fell to 99°, though otherwise his symptoms did not improve. Six days after the operation, it again rose to 102.6°, and later it was 103.9°, while his condition was practically unchanged. Examination revealed the presence of optic neuritis and engorgement of the retinal vessels. Two weeks after the operation, inasmuch as the symptoms indicated the presence of pus, 10 c. c. of antistreptococcic serum were injected, followed on the next day, and four days later by injections of 5 c. c. each. Within a few days the temperature became normal and all symptoms improved. He was discharged in a month with no symptoms present except slight thickness of speech and slight paralysis of the upper eyelid.

Loeb.

Hair-cells of the Acoustic and Ampullar Areas of the Ear.

226. RANDALL, B. A. (*Jour. of the Am. Med. Ass'n.*, February 12, 1898.) In spite of all attacks upon it, the theory of Helmholtz, as to the function of the cochlea in the perception of musical tones, stands without reasonable alternatives. The stiff radiate fibres of the basilar membrane, increasing manifold in length and tenuity from the basal to the apical turns, are like so many harp strings (24,000 by some estimates) attuned to vibrate to sounds of every pitch audible to man. Upon them rest the hair-cells, fitted to convey to the sensorium all recognizable variations of pitch; and pathological research enables us to predict cochlear lesions which are found in the lower or upper part of the cochlear turns, according as there was loss of perception for high or low tones. Noises of mixed or unmusical character are probably perceived in the differential portions of the vestibular saccule and utricle.

Most authorities admit that the function of the semicircular canal pertains to equilibrium, and not to audition. As the water in a glass remains nearly unmoved while the glass is rotated rapidly around it, so the movements of the head rotate the semicircular canals upon their contained columns of fluid, making in one or more of the canals virtual currents reverse of every motion.

(While the semicircular canals probably take a prominent part in equilibrium, it is extremely doubtful whether

this takes place by means of the *currents* of contained fluids in these canals. Capillary attraction and adhesion are generally so strong in a canal of such minute character and of such short length, that the molecules of fluid would change place only by the most violent movements of the head, while the real function of equilibrium in the normal condition is of a most delicate character.—SCHEP-PEGRELL.) *Scheppegrell.*

Otomyasthenia.—Muscle Deafness.

227. RUMBOLD, THOMAS F. (*Cinn. Lancet-Clinic*, Jan. 8, 1898.) Two causes of deafness not generally recognized are paralysis agitans of the ear muscles, and a debilitated condition of these muscles which prevents them from selecting and amplifying sounds normally. Persons so affected usually have normal hearing as far as distance is concerned, but where there is the necessity for selection and amplification, as when a number of persons are speaking, the ear organs are unable to perform the task.

Dr. Rumbold believes that the subjective symptoms in otomyasthenic deafness proves that the function of the middle ear is to collect and amplify such sounds as the listener desires to hear most distinctly, showing that the ears have muscles of accommodation analogous to those of the eyes. *Scheppegrell*

Otic Brain Abscess of Left Lobus Temporalis. Trepaning. Recovery.

228. RUPPRECHT, Dresden. (Annual Report of the Society for Natural and Medical Science, at Dresden, 1897, p. 61. *Archiv. f. Ohrenh.*, Bd. 43, H. 4.) Girl, 7 years old, with chronic otorrhea (cholesteatoma) on left side, and inflammatory edema; taken about the middle of November, 1896. Eclampsia, headache on left side, somnolency. No fever. November 21, free exposure of middle ear spaces; no improvement in cerebral symptoms. November 23, operation on the posterior cranial fossa, done by Dr. R. Panse, with negative result. As external suppuration and sinus thrombosis were excluded, operation of trepaning done on November 26, by Rupprecht, assisted by Panse. Diagnosis of abscess on left lobus temporalis from following symptoms;

1. Absence of rise in temperature.

2. Symptoms of pressure: Headache, somnolency, neuritis optica, slow pulse.

3. Focal symptoms: Paresis of left oculomotorius, amnesic aphasia.

Rupprecht cut 1.5-2 cm. above the auditory canal a small hole in the squamosa, and proceeding downward with the bone forceps, to the exposed cavities of the middle ear cut away, the bone, together with the tegmen tympani. The exposed dura pulsated. A superficial puncture, directed upward in the region of the tegmen tympani, and which cut transversely the dura 1 cm. at once set free about $1\frac{1}{2}$ dessertspoonful fetid secretion with streptococci. Drainage. Rapid improvement of cerebral symptoms; controlled 9 months after operation. Otorrhea not healed.

Alderton.

On Burns of the Meatus Auditorius Externus, and of the Membrana Tympani.

229. SCHWIDOP, DR. O., Karlsruhe, B. (*Archiv. f. Ohrenh.*, Bd. 43, H. 4.) One would suppose that so powerful an agent as tinctura iodin would have a highly deleterious effect upon the membrane and the deep portions of the canal, especially when the membrane was already affected. But in the following case it was not so.

Herr I. M., 35 years old; merchant. March, 1897, otitis media of left ear; result of influenza. Writer obliged to allow patient to treat himself; tincture of iodin pure for painting the mastoid, and warm drops of ichthyol glycerin in the ear. April 13 patient's wife, by mistake, dropped iodine instead of glycerin into the ear. In 6 minutes patient experienced intolable burning in ear. Conjunctiva strongly injected; a sudden violent catarrh on left side; pain extended to throat; head "quite confused;" no toothache; no change in mucous membrane of nose and pharynx. Entire canal and membrane very yellow.

All these violent symptoms disappeared in an hour. In three hours ear unchanged; slightest pressure on tragus and moving the auricle very painful; no pain in mastication. Hearing unchanged.

Twenty-four hours later all disturbances had vanished; head clear; no pain even on pressure.

In lateral portions epidermis hung in shreds, but in the deeper portions and in the membrane no redness or inflammation, no blisters. Inflation did not cause pain; moderate secretion; hearing distance 4 mtr.

Four days later (April 16,) new formation of epidermis in cartilaginous canal; drum membrane unchanged.

Rapid healing also of previous otitis media catarrhalis; patient discharged well in May. Hearing distance 5 mtr. for whisper, even in the noisy street, therefore normal. No change later.

Notable that the lateral parts of the canal, which are subjected to all possible influences without injury, should have reacted at once and so strongly under the iodine, while the membrane, which is generally so sensitive to simple influences (cold water, etc.), should have remained unchanged.

Alderton.

Acute Myringitis.

230. SEISS, R. W. (*Journal American Medical Ass'n*, March 19, 1898.) Simple inflammation of the drum membrane may be caused by disease of the external auditory canal, of the Eustachian tube, of the middle ear, or by direct injury from foreign bodies, irritating fluids, etc. Hemorrhagic myringitis is rare, and the writer has not seen more than 20 cases in 2,000. Suppurative inflammation of the membrana tympani may occur from septic disease of the middle ear, or of the external auditory canal, and in rare cases is purely primary. In the latter cases, a true abscess occurs between the layers of the drum, which may break outwardly with or without complete perforation of the membrane.

In desquamative inflammation of the drum, it is important to entirely clear the aural fundus of the decomposing masses, as they may develop further irritation.

Scheppegrell.

Fracture of the Cartilages of the External Ear.

231. SOMERS, L. S. (*New York Medical Journal*, Jan. 22, 1898.) The most frequent cause of injury is a blow on the ear. In advanced years there is frequently an excess of calcium salts in the cartilage, which renders it less resistant to traumatism. This was the condition in the

case reported, in which a woman of 41 years was struck on the left auricle by a large shuttle flying from a loom. As there was no loss of cutaneous covering, and no way in which the parts could become infected by pathogenic micro-organisms which would cause septic inflammation of the ear, the ear healed without treatment.

Scheppegrell.

Ossiculotomy in Chronic Suppuration of the Middle Ear.

232. STUCKY, J. A. (*Journal American Medical Ass'n*, March 26, 1898.) The chief object of ossiculotomy is the removal of all caries bone, cleansing thoroughly the attic and tympanic cavity, and the establishment of free drainage. The summary of the results in the cases operated upon is as follows:

In 30 cases suppuration ceased and the hearing improved from 10 to 20 per cent.; all uneasiness in ear and head were relieved. In 4 cases the suppuration stopped entirely for several months, then returned, this being due to formations of granulations, which were easily destroyed and the patient relieved; no improvement in the hearing. In 2 cases the results were negative, so far as relief of suppuration or improvement of the hearing, the fulness and dizziness were relieved and suppuration lessened. These cases were afterward found to be tubercular. In 11 cases the incus could not be found, and only a part of the malleus. In the 25 remaining cases, the entire portions of the malleus and incus that remained were removed. In no case was the ossicle involved, the greatest amount of necrosis being observed in the incus. *Scheppegrell.*

Traumatic Lesions of the Ear.

233. SZENES, SIGISMUND, Budapest. (*Archiv f. Ohrenh.*, Bd. 43, H. 1.) Impossible to present a typical representation. Several cases which appear noteworthy.

Case I.—November 20, 1890, merchant, 30 years old, presented himself. Three and a half months previous had been thrown out of a carriage; unconscious; carried to hospital; gaping bleeding wound on left parietal bone; no perceptible fracture; remained unconscious for forty hours; slowly recovered in six weeks; slight continued hemorrhage from left ear for nine days; hearing in left

ear much impaired, also in right ear from otorrhea of 20 years standing; constant tinnitus on left side.

Left drum membrane normal; on the right cicatrix of anterior inferior quadrant. Right ear, watch heard 10 cm.; tuning fork, bone conduction only for low, air conduction as well for high tones. Left ear, total deafness for watch and whisper. Politzer's acoumeter felt, not heard by B. C., C, C¹, C² also; C³ C⁴ "a", lateralized from right to left mastoid; Weber lateralized to right for all tones. Rinné negative to right.

Diagnosis: Cicatrix of right drum membrane after chronic suppuration of tympanum; left deafness in consequence of commotio labyrinthini. Scar on left parietal bone 3½ cm.; no mark in external canal to explain hemorrhage; absolutely no trace of possible rupture of drum membrane; three and a half months had passed since lesion, therefore, eventual improvement could not be certain, so patient did not ask for treatment, and case valuable only from a diagnostic standpoint.

Cases II. and III. similar and therefore, not reported.

Case IV.—Called on August 18, 1893, to see man 32 years old, (merchant) who had fallen from a tram car and run over by rapidly passing wagon. Carried unconscious to hospital, from thence home, in same condition; accident in early morning; aurist called in evening, because of hemorrhage from left ear; commenced at time of accident, slight through the day, profuse at night; patient lay on back with eyes closed; moved now a foot, then a hand; did not answer questions.

Examination revealed in left external canal dry blood clots and flowing blood, which removed, revealed the rupture way up on the wall of canal, near drum membrane. Inferior portion of membrane more covered with blood than superior; although examination was difficult, perceived that handle of malleus was not in proper shape or place; hearing distance could not be tested; so diagnosis of family physician, "commotio cerebri with probable fractura basis cranii" was endorsed, and firm tamponnage ordered for recurring hemorrhage.

Patient unconscious twelve days; in bed two months; not fully recovered for three or four months. Much head-

acho and giddiness. Suppuration from left ear, which ceased in five to six weeks; treated by family physician; syringing, etc. Writer again saw patient when fully recovered; could discover no cicatrix in canal, but the handle of malleus was in two unequal pieces, (the inferior three times as large as the superior) which had grown together to form an angle, and there was a crescentic deposit of chalk in the drum membrane. Hearing much impaired; watch only ad concham; whisper 20 cm.; C and C¹, B. C. only; C², C³, C⁴, "a", A. C. also; Weber tuning fork from head, lateralized on left side: Rinné positive for high, negative for low tones. Writer saw patient again in one year. He was able to follow his calling with profit; impaired hearing remained stationary. We have here, incontestably, fracture of the wall of the canal, and of malleus, which united after a five to six weeks suppuration from tympanum. Impaired hearing attributed to changes in tympanic cavity; no appearance of trouble in labyrinth (no tinnitus, no giddiness, etc.) Writer might exclude eventual lesion of inner ear (did he not wish to accept it) which disappeared with improvement of general cerebral symptoms, leaving no trace.

Case V.—A colleague, who stumbled over some steps in the dark, and ran the end of his spectacle frame some mm. into the posterior wall of the right auditory canal. Rather profuse hemorrhage ensued. Writer could see wound and could introduce sound 2½ mm. but could not feel a fracture. Hearing not impaired, and no serious symptoms save scant, persistent hemorrhage, which ceased with faithful employment of tampons, and wound healed. Case only cited to show that fracture of bone should not be taken for granted, when hemorrhage from ear follows fall or blow.

Case VI.—Child 2 years old, fell from table; hemorrhage from right ear as result of fissure in external canal; marked labyrinthine symptoms; vomiting two or three times a day, and for several days constant tumbling over backward. Hemorrhage ceased on third day, but wound continued to suppurate, and child pronounced recovered only on 23d day. This was in November, 1892; writer has since seen child at long intervals; recovery permanent.

Case VII.—July 30, 1894, consulted by a colleague; ten years ago acute tympanic suppuration, which became chronic in spite of special treatment. Specialist advised removal of supposed carious malleus; suppuration ceased after operation; recommenced in course of a few weeks; giddiness when ear syringe was used.

Writer found in right auditory canal fetid secretion; ear carefully syringed; on anterior superior wall, near the edge of the nearly totally destroyed drum membrane, three isolated polypoid proliferations, as large as a pin head. Writer removed growth, and during operation found bone suspicious. Sound now introduced into recessus epitympanicus; more small, bleeding proliferations and caries. Writer wished to wash out superior tympanic cavity, but had only used a few drops of lysol solution with very gentle pressure, when patient complained of faintness. Conducted 4 m. to couch, and as soon as he lay down was seized with giddiness, and in one or two minutes vomiting, which was repeated numberless times, although he lay flat upon his back. Cold perspiration came out over whole body, pulse became weak; was 100 at first, but dropped to 56; patient did not lose consciousness, but could not draw deep breath; oppression of heart. Two injections of camphorated ether given; various positions for head tried to avert vomiting; finally succeeded, when patient was placed on left side with head rather high. This position for three and a half hours; if position were in the least changed, giddiness and vomiting returned. Nothing to be done but to have patient carried to hospital in same condition; vomited several times on the way, last time next morning at the hospital. Able to leave bed on fifth day. No fever while at hospital. Writer regards symptoms described as result of shock to the labyrinth.

Writer told patient of the gravity of his condition and urged radical operation. Patient went home, arranged his affairs, and consulted Schwartz at Halle, who confirmed the writer's diagnosis and undertook operation. Patient did not remain there until perfectly recovered. Writer has had several letters from patient, who says: "That aside from a scant secretion (for which he uses

gauze every other day) he is quite well.' In proof of his regained equilibrium, he says that he has been riding a bicycle for three months, and often covers 30 km. without fatigue.

Alderton.

**An Apparatus for the Coustant and Even Alternation of
Tone Height.**

234. STERN. (Verhandlungen der physical. Gesellsch. zu Berlin. XVI. Jahrg., No. 4. *Archiv f. Ohrenh.*, Bd. 43, H. 4.) Consists of a bottle which may be blown upon by means of a flattened glass tube attached to the top. This communicates with a second vessel of similar form, (variator). Both may be filled from beneath with mercury from a glass cylinder. The contents of the cylinder may be alternated and proportionately estimated by an arrangement with piston, pivot, screw and cog-wheel. By means of this apparatus it is possible to alternate the height of tone of the vessel when blown upon, in a wide register; also the rapidity of alternation is even; also the tone-height reached may always be readily estimated.

Instead of the air bladder, an air pump of 3-6 atmospheric pressure with a valve attached to the stop-cock, is used.

With this apparatus may be demonstrated:

1. Slow and rapid modification of tone.
2. Sound waves.
3. Differences in tone.
4. Gradual transposition of consonant intervals.

Alderton.

Estimation of Number of Vibrations in Very High Tones.

235. STUMPF, C., AND MEYER, M. (*Annalen der Physik u. Chemie., Neue Folge*, Bd. LXI, 1897; *Archiv. f. Ohrenh.*, Bd. 43, H. 4.) The writer tested 3 Galton whistles, 2 by Edelmann and 1 by Bezold; also a series of whistles manufactured by Appunn, Jr., and a series of small tuning forks by Appunn, Sr., in order to estimate their tone-height by means of the method in use for observing difference in tone. Details of the tests may be read in the original.

All the tests made revealed considerable difference in the number of vibrations as stated and as estimated by experiment.

Exact functional tests of hearing distance are most important in scientific otology in order to determine the highest and lowest registers of hearing, and also the continuity of tone. Therefore, a decision is eminently desirable.

Alderton.

Lymphangeio-Sarcoma of the External Auditory Canal.

236. COHEN TERVAERT AND DE JOSSELIN DE JONG. (*Archiv. f. Ohrenh.*, Bd. 43, H. 1.) Sarcoma of the ear rarely met with. Sarcoma of the external auditory canal is very unusual. Asch, in his comprehensive work, tells of 10 cases of sarcoma of the auricle; 3 cases of sarcoma of external auditory canal. Dench communicates 3 cases of sarcoma of the external ear, and in 1 only did the neoplasm proceed from the wall of the auditory canal, filling it, and likewise the tympanic cavity.

Therefore, writers consider a case of lymphangeio-sarcoma of the auditory canal worth publication. Cohen Tervaert made the observation and did the operation. De Josselin de Jong made microscopic examination and gave histologic diagnosis. Observation the more worthy of publication because of plexiform sarcoma of the ear connecting with the endothelium of the lymph sinuses has not been described. The nearest approach to it is Haug's plexiform angio-sarcoma, which had its origin in the perithelium of the blood vessels.

Patient, a lady 57 years old, otherwise in good health. Under observation $3\frac{1}{2}$ years previous for swelling in left auditory canal. Removed completely with the sharp spoon and cauterization. Tumor examined, and by him recognized as lymphangeio-sarcoma.

January 10, 1897, the patient came again to de Jong. Swelling again in left canal, although at last examination, 6 months before, canal was normal. Tumor found at entrance to bony meatus occupying superior half of lumen; hard, white, sinewy; broad insertion; the inferior edge convex. A thin speculum easily passed between tumor and inferior wall; medial portion of canal and drum membrane normal. No swelling of lymphatic glands. No pain; slight defect in hearing. Operation done on January 31. Removal by external canal did not seem practicable, because cicatrix might have grown fast to bone, or neoplasm might have attacked bone.

Auricle cut around and integument of canal lifted out. There was no adhesion to the bone, nor had the tumor affected the bone. On the contrary, the periosteum was perfect. Tube slit across on the side of the tumor, and tumor easily removed with scissors, bringing bits of cartilage with it. Tube dressed with iodoform gauze, wound sewed up and bandaged; result favorable; wound healed soon; end of August tube open, and no sign of relapse.

Anatomic conditions: Tumor prepared in usual manner. Under slight enlargement seen to be a plexiform neoplasm in the subcutaneous cell tissue. The circumvolut ed cell furunculi are now united in groups, again are like long runners sent out in the connective tissue; in many places along the periphery of tumor isolated cell groups, the form of cells corresponding to the main part of tumor. Epithelium normal, also the glands when they do not touch the neoplasm. Where such is the case, there is naturally atrophy. No inflammation, no secondary cell-proliferation to be seen in stroma or connective tissue. In the center of the cell-furunculi a delicate lumen, and in many of the isolated groups the same well defined, partially invested with expanded cells of endothelium, or with true tumor cells.

Under great enlargement this delicate lumen of the isolated groups seem to be almost exclusively invested with tumor cells.

In some places a very thin wall is of pavement cells with pronounced dark nucleus.

The fissure-like lumina are gradually lost in the surrounding connective tissue, or form a cul-de-sac in the cell masses.

Diagnosis Sarcoma plexiform endothelioma. Form of tumor cells generally long and oval, with exceptional round or irregular ones.

Protoplasm did not clear well; small compared to nucleus.

Cells lie close together. Nucleus same form as cell.

Alderton.

Cholesteatoma, Abscess of the Brain.

237. THOMAS AND LARTAIL. (*Revue hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, February 26, 1898.) Following the

suggestion of Moure, the author reports a case of intervention in cholesteatoma and brain abscess in a boy 17 years of age. After removal of granulations at the posterior upper margin of the membrana tympani, cholesteatomatous masses were removed from Shrapnell's cavity. Facial paralysis. Two cholesteatoma cavities had been found; the lateral sinus was free; no abscess was found. Ten days later removal of the tegmen tympani. Twenty-three days after this, puncture of brain with Luc's knife without other result than improvement of pressure symptoms. Patient went home, and died suddenly at an effort at stool; no post-mortem. The author supposes that death was due to perforation of an abscess into the ventricles.

Holinger.

Historical Sketch of the Operation Upon the Mastoid Process.

238. TURNBULL, Lawrence. (*Jour. of the Am. Med. Ass'n.*, March 5, 1898.) An interesting resumé of the subject.

Scheppegrell.

Contribution to the Symptomatology and Treatment of Pyemic Sinus Thrombosis

239. WHITING. (*Archives of Otology*, Vol. XXVII., No. 1.) The author deals with infective thrombosis in the sigmoid and cavernous sinuses. It is always secondary to some infective inflammation and is dependent upon the introduction into the sinus of septic micro-organisms, which originate somewhere in the immediate vicinity. In the vast majority of cases it is due to the presence of chronic suppurative disease of the middle ear.

The path of infection is most commonly immediate extension from contact with diseased bone; less commonly it takes place through fissures or by disease of small veins of the bone which empty into the sinuses.

The attack is usually ushered in by pain radiating from the ear over the corresponding side of the head, a feeling of malaise and nausea, preceded or followed by a sharp chill and a sudden and pronounced rise in temperature. This marked elevation of temperature is subject to frequent remissions, the variation in a few hours amounting to, in many instances, as much as 6° F. Very high temperature is significant of the degree of toxemia present in the case.

There is often edema in the mastoid region extending backward and upward over the site of exit of the mastoid vein, and downward to that portion of the scalp drained by the occipital vein, associated with tenderness in the upper portion of the posterior cervical triangle. As recently pointed out by Stirling, there may be moderate edema or puffiness of the eyelids, of the corresponding side, as a result of interference with the cavernous sinus and engorgement of the ophthalmic vein. Gerhardt claims that pressure over the unaffected external jugular vein shows that there is a decided increase in the amount of blood passing through the vein. Rigors constitute a prominent feature at all stages of sinus thrombosis. They occur early, are frequently repeated, and are accompanied by profuse perspiration.

The pulse and respiration become more accelerated with increasing toxemia, until in fatal cases the pulse rate mounts to 180, and upward.

In cases of sinus thrombosis which terminate fatally, there appears a line of symptoms after an interval of about fifteen days, which are arranged into three groups, according as the dominant symptoms are pulmonary, abdominal or meningeal.

The pulmonary manifestations begin insidiously, usually with a slight dyspnea and cough. The patient complains of localized areas of pain over the chest. These pains are due to the establishment of infarctions here and there over the lung and are followed in the course of twenty-four hours by rusty sputum and moist rales on auscultation. The sputum swarms with bacteria and has an offensive, putrid odor, which is also noticeable in the breath. Large areas of the lung become gangrenous, and abscesses result. Death ensues from exhaustion.

The abdominal type manifests itself in symptoms of a typhoid character. There is loss of appetite, dry furred tongue, and diarrhea, the odor of the discharge from the bowel resembling that of the otorrhea. There is great prostration, and soon muttering delirium.

The meningeal group of symptoms is less frequently encountered than either of the preceding, and is rarely found without association with one or other of them. The men-

ingitis may arise from the infective thrombosis, but it may also originate directly from the primary source of the disease and appear as a complication, the symptoms of which may predominate over those of the sinus thrombosis. The temperature is continuously high, vomiting occurs frequently. There is apt to be clonic and tonic spasms of certain muscles of the face and neck, also paresis of others. Strabismus is a common symptom, and in case the lepto-meningitis becomes spinal there are spinal indications, girdle pains and absolute prostration. The patient can be aroused by interrogation, but exhibits irritability. In the later stages delirium supervenes which is followed by coma and death.

Immediate operation upon the sinus should be made as soon as we are certain of its being the site of obstructive phlebitis, because the presence of the thrombus is a continual menace to life, on account of its tendency toward disintegration and the establishment of metastatic embolic processes.

The mastoid antrum should be freely opened and the chiselling carried inward to expose the lateral sinus. The thrombus can often be seen dilating the sinus walls, as if a cord too large for the lumen had been forcibly drawn into it, and upon palpation feels firm, dense and resisting. The aseptic needle thrust into the sinus brings away serum, disintegrated clot, pus, or nothing at all, as the case may be. The sigmoid groove must be cut away sufficiently to admit of full investigation of the thrombosed portion. At this stage one must determine regarding the desirability of ligating the jugular vein. Having decided in favor of the step, it should be done before opening the sinus. Having decided against it, the sinus wall should be freely incised in its long axis and the obstructing contents removed by a sharp curette, first from the direction of the torcular and the current re-established from this direction. When the flow is sufficiently rapid to convince one that the lumen is clear of infective masses, a gauze tampon packed upon, and not in, the vessel-opening, will control the bleeding easily and safely.

The same steps are now repeated in the proximal end of the open sinus until the circulation is here re-established

and this is controlled better by packing gauze into the lumen of the vein. Its withdrawal at a later dressing is seldom followed by bleeding, owing to the crooked course of the groove at the bulb, the clotting taking place very readily and firmly.

In the event of failure to re-establish the circulation from below the jugular bulb, whether one has removed a purulent disintegrated clot or not, it is one's imperative duty to his patient to tie the internal jugular forthwith, as otherwise there is left open the main avenue to almost certain pulmonary metastases.

The cases on which the author's remarks are based, are as follows:

Case I.—A man, aged 42 years, who six months before had suffered from acute suppuration of the right middle ear, followed by mastoiditis, which was operated upon by his local physician. Symptoms subsided, but the otorrhea persisted. On examination, the canal of the right ear was found full of granulations and the probe came in direct contact with a large sequestrum. Mt. is absent. The mastoid region is red, swollen and edematous, the edema extending backward to the occipital protuberance. This whole area is tender on pressure, but more particularly so over the point of exit of the mastoid vein.

The right tonsil is discharging pus and has a small mass of granulations upon its upper border. This may possibly lead to a sinus in the petrous bone.

During the past month, at intervals of a week, on three different occasions, the granulations of the canal have been curetted. These operations caused him great pain, and since the last curettement, four days ago, he has had most severe headache, chills followed by fever each day, vomiting of all food and drink, and marked vertigo. Temperature 102.5° F.

He was prepared for immediate operation, and a curvilinear incision made parallel with the post auricular fold from $\frac{1}{2}$ " below the tip of the mastoid to 1" above the temporal ridge. The periosteum was adherent over the entire apophysis and the cortex was of glaring whiteness and exhibited a small dimple-like depression, on the site of the operation for the relief of mastoiditis. The lower two-

thirds of the mastoid was sclerosed, but the upper one-third, after removal of the outer table, was found necrosed, a sequestrum extending from the posterior wall of the bony meatus directly backward to and including the wall of the sigmoid groove. The entire process was removed with chisel and rongeur, and the sinus exposed from the knee down to the bulb. The sinus was much distended, firm and resisting to palpation; pulsation could be plainly seen and felt, but it was evidently transmitted from the underlying brain tissue.

A second incision was now made on a level with the external auditory meatus directly backward toward the occipital protuberance and the lateral sinus uncovered backward from the knee 1". An aspirating needle was introduced downward toward the bulb and backward toward the torcular without obtaining any blood, but only a little serum, odorless and containing many leucocytes. The sinus wall was now incised and a firm, fibrinous clot exposed; this was very easily removed by forceps, and after the central portion had been withdrawn the pressure of the blood current forced the remainder out without any curetting, and the circulation was re-established from above and below. Packing with iodoform gauze easily controlled the flow. As there had been no tenderness along the course of the internal jugular and no induration to be felt, it was considered that ligation was not indicated. The sepsis was of low degree and recovery was complete.

Case II.—A woman, aged 30 years, always strong and well up to five months before coming under observation, when she suffered from grippe. To relieve the congestion in the head she used a nasal douche of salt solution, which was followed by sharp pain in the right ear. This pain continued for three days and was relieved by the appearance of profuse suppuration. The mastoid became very tender, swollen and edematous, the supero-posterior canal was bulging, and the discharge was profuse. The temperature was 100° F., and after the application of the cold coil for thirty-six hours, with frequent hot douching, the tenderness and pain persisted and the temperature was still 100° F. The mastoid was opened and pus found,

the sigmoid groove was carious and was removed by cur-
etting, exposing the descending portion of the sinus for $\frac{1}{2}$ ". There was no sinus involvement. Patient did well
for four months, when she began to have chills and ele-
vation of temperature; there was anorexia and frequent
vomiting. Necrosed bone was found present in the wound.
On the fifth day after the first chill, she exhibited signs
of collapse; pulse feeble, 108; temperature 101° F., and
rapidly rose to 106° F. The urine contained a large amount
of albumin, some hyaline and blood casts. The old mas-
toid wound has not healed. The flaps of the wound were
edematous for a considerable distance backward toward
the occiput, and upward. There is marked tenderness
along the course of the jugular in the neck. On making
obstructive pressure across the course of the external jug-
ular no turgescence of the vein ensued and, indeed, there
was no appreciable difference to be noted in the size of the
vessel when pressed upon or when unimpeded; while upon
the healthy side very light pressure immediately en-
gorged the vein to a pronounced degree.

The original mastoid wound was extended upward to the
squamous suture, and a second incision on a level with the
center of the external meatus carried backward three
inches, nearly to the occipital protuberance. When the
flaps were raised over the foramen of exit of the mastoid
vein, there was no bleeding. With sharp curettes and
rongeur an area of necrosed bone was removed, extending
from the remains of the mastoid tip upward well into
the squama, exposing the tempero-sphenoidal lobe and
backward over the sigmoid groove, the entire bony wall of
which as far downward as the foramen lacerum posterius,
was soft and easily broken away in large pieces.

The sigmoid sinus was uncovered at the knee and back-
ward $1\frac{1}{2}$ " along the horizontal portion, also all the descend-
ing portion as far as the jugular bulb. The sinus walls
were firm and resisting, no pulsation was seen or felt. An
aspirating needle was passed backward toward the torcu-
lar and downward toward the bulb with negative result.
The sinus was then incised parallel to the course of the
vein from behind; downward to the bulb; there was no
flow of blood and the exposed clot varied in consistency

from a firmly organized resisting mass near the torcular to thin foul smelling pus and lymph, which adhered to the vessel walls at the bulb. With a curette, the sinus toward the torcular was cleared of clot and a copious flow of blood allowed to escape momentarily, so as to detach and expel any loose infective particles; the bleeding was then controlled by iodoform gauze packing. The sinus down to the jugular bulb was then curetted, removing much offensive pus and granulation tissue, and what looked like cholesteatomatous material, but the flow of blood was not established. The sinus was thoroughly flushed with sublimate solution and packed with iodoform gauze. The internal jugular was now exposed throughout its entire length, raised from its sheath and ligated in the inferior carotid triangle one-half inch or more below the level of the clavicle and also at its emergence from the skull. On splitting the vein between the ligatures the soft fibrinous clot was easily removed; it was evidently a very recent extension and was free from odor. The vein was not resected. During and after the operation the patient was very weak and required free stimulation and transfusion of normal salt solution.

Metastatic abscesses formed at intervals on different parts of the body till twenty-eight days after the operation. Convalescence was very tardy, she being discharged from the hospital after sixty-eight days treatment.

Case III.—A woman, aged 23 years, who had otorrhea following measles in childhood, but the discharge ceased and she has been free from it until the present attack. Patient suffered with tonsillitis two weeks ago. Five days ago she first experienced pain in the right ear. The Mt. is now very red and slightly bulging in the supero-posterior quadrant. In this quadrant there is a small perforation from which there is a scanty purulent discharge. The appearance of the mastoid is negative; there is a tenderness over the tip on deep pressure. Temperature 100.2° F., pulse 104. Leeches and Leiter's cold coil were applied to the mastoid, with hot sublimate irrigations every three hours.

The mastoid tenderness subsided, but the patient complained of a deep pain radiating from the ear over the

whole side of the head; this pain increasing somewhat, and having a throbbing character, it was decided to open the mastoid. In the mastoid antrum was found a few drops of offensive pus. The cells of the tip contained no pus, yet from the antrum downward and backed to the sigmoid groove, the bone was carious. This carious bone was removed and that down toward the bulb, until the structure seemed healthy. In removing the wall a small spicule of bone broke off and punctured the sinus. The hemorrhage was easily controlled by a gauze pack.

Twenty-four hours after the operation temperature was 102.4° F., and pulse 112. Three days later, there appeared slight edema of the eyelids of the right side. On the seventh day, edema of the lids of the right eye had almost disappeared, and edema of the lids of the left eye was first noticed. On the same day the patient had a sharp chill with a rapid rise of temperature to 104.2° F. Next day there was great pain over the whole side of the head, and tenderness, but no induration along the course of the jugular vein. Operation was advised, but declined.

A distinct cord-like infiltration could now be felt in the superior carotid triangle, severe edema of the left eyelids again appeared, and a double neuro-retinitis could be diagnosed with the ophthalmoscope.

Consent having been given, a second operation was performed seventeen days from the date of the first. The ligation of the jugular was the first step in the operation. This was done under great difficulties on account of the inflammatory infiltration firmly gluing the sterno-cleido-mastoid muscle to the underlying layer of fascia. Upon opening the jugular sheath the vein beneath the omo-hyoid lay like a broad red ribbon, quite collapsed and apparently containing no blood. The portion of vein lying above the omo-hyoid muscle was firm and round, about the size of a large lead pencil, increasing gradually in bulk as it approached the bulb. The jugular being tied near its point of emergence from the skull and just above the level of the clavicle was resected between these two points of ligation.

The former mastoid incision was now extended upward to within an inch of the vertex. A second incision was

made directly backward two and a half inches toward the occipital protuberance and on a level with the center of the bony meatus. With a rongeur and chisel the covering of the sinus was removed. All the descending portion of the sinus was exposed and about one inch of the horizontal sinus. The horizontal portion appeared normal, dimpling under the finger, while the descending portion was firm and resisting, but not apparently dilated. It did not pulsate. Placing a small compress over the horizontal sinus, the descending portion was incised for two and a half inches, and there escaped a small, soft odorless clot. A curette was introduced toward the bulb, and about two drams of fetid pus and cheesy matter escaped. The sinus was irrigated with sublimate solution 1:5000, and packed with gauze. The granulations in the mastoid antrum were curetted, and the bone beneath appeared quite healthy.

The patient required free stimulation during and after the operation, and normal salt solution was transfused a number of times after the operation. The effect of the transfusion was immediately noticeable, the pulse becoming markedly fuller and slower. The patient's condition was satisfactory, and with the exception of a chill after transfusion on the fifth day and the formation of an abscess at the vertex, which was opened on the twelfth day, her progress toward convalescence was uneventful. The report of the pathologists upon the tissues of the resected jugular vein and expelled clot was, that the structures were swarming with strepto-, staphylo- and diplococci.

Sinus phlebitis is a disease of adult life and occurs with greatest frequency between the ages of 20 and 40. Men, rather than women, are its victims, in the proportion of 70 per cent. and 30 per cent. The right side is more commonly involved. The number of reported cases operated upon is 139. Of these, 95 terminated in recovery, and 44 in death.

When the jugular has been tied in two places, resect it; healing of the wound is thereby much more rapid and satisfactory.

The indications for jugular ligation in thrombosis of the sigmoid sinus:

First: The indications which justify an operator in ligating the jugular before exposing the sinus should be very decided, and as follows:

1. The existence of chronic otorrhea.
2. Pronounced manifestations of pyo-septicemia, high fever, sudden remissions and repeated rigors.
3. Metastases.
4. Occipital edema and tenderneess.
5. Edema of eyelids of corresponding side.
6. Tenderness and cord-like feeling along course of jugular.
7. Beginning neuro-retinitis.

Second: The indications for ligation after exposing the sinus and recognizing the thrombus, but before opening it.

1. The presence of a clot extending well down into the bulb and disintegrated in its lower portion, associated with distinct pyemic symptoms.

2. The display of sinus respiratory movements which render probable the admission of aerial embolism to the heart, unless the vein were first tied.

Third: Indications for ligation after exposing and opening the sinus.

1. The presence of a large thrombus, extending down into the bulb, and having undergone liquefaction in the deep bulbous portion, which may not have been diagnosed until the sinus was extensively opened.

2. Inability to re-establish the circulation from below, whether the clot has or has not disintegrated, and whether or not there has been tenderness in the neck.

Campbell.

Three Cases of Suppurative Otitis Media.—Severe Systemic and Remote Disturbances.

240. WOODS, HIRAM. (*Journal American Med. Ass'n*, March 19, 1898.) In the first case reported there were septic symptoms for five days, when a painless otorrhea called attention to the ear. In the second case there was pain in a formerly diseased ear from scarlatina, four weeks previous. After some days of normal temperature, fever returned without increase, however, of the aural symptoms. In both cases the appearance of otorrhea failed to

relieve the patients, both recovering immediately after the mastoid was opened, nothing else giving relief. No pus, however, was found in the second case, and but a drop in the first.

In the third case, the indications for mastoid operation appeared urgent, but the family declined surgical interference until the patient was in a critical condition. Fetid pus then discharged freely from the meatus, and the patient began to convalesce. The history indicated, however, that there was probably an accumulation of pus in the mastoid, which would again endanger the patient's life.
Scheppegrell.

A Case of Chronic Suppurative Middle Ear Disease, with Intra-Cranial Complications.

241. WOODS, ROBERT H. (*British Medical Journal*, Jan. 22, 1898.) Patient gave history of scarlatina 15 years previous, and for 7 years an intermittent fetid pus discharge from left ear, together with chronic constipation.

Present trouble was ushered in by cessation of discharge and throbbing headache, especially on left side and occipital region. His pupils were dilated and reacted slowly, the eyes were prominent, not covered by the lids, tongue coated, free perspiration, rash, pain in the abdomen, especially in the right iliac region, a mitral murmur, yellow stools, and tenderness at base of skull.

The diagnosis wavered between typhoid fever and intracranial trouble. Further examination showed slow cerebration, inability to call things by their right name, and a temperature with a daily range of 8.5° F.

Having finally settled upon the diagnosis of sigmoid sinus thrombosis, an incision was made. The sinus was found thrombosed, with a pus cavity on the cerebellar aspect of the petrous bone. The remediation of these conditions brought some, but not a complete relief, and two days later a second operation was performed. The cerebellum was found intact, but a puncture, followed by an incision into the temporo-sphenoidal lobe, revealed a cavity containing pus and brain slough.

The patient made slow progress toward recovery, the time from the attack until a few days after the second operation being a total blank to him. He slowly recovered.

from the amnesia, and discharge from ear ceased. Two epileptiform attacks have since occurred. Patient at those times was constipated, and purging gave complete relief.

Loeb.

On Suppurative Middle Ear Disease, with Its Relation to the Exanthemata.

242. WOODS, R. H. (*Journal of Laryngology, Rhinology and Otology*, January, 1898.) Suppuration of the middle ear, following rupture of the drum and serous discharge from the ear, is due to two possibilities, either before the accident there were quiescent in the drum pyogenic organisms, which only needed the opportunity afforded them by the injury to affect the mucous membrane; or the drum had been aseptic to start with, and the mucus discharge had become accidentally contaminated from without. The latter seems the more rational and, hence, conservative treatment, which might promote cure without rupture, is indicated. The writer, therefore, followed the plan of using a saline purge and Gruber's ovoids of gelato-glycerine, and gr. $\frac{1}{6}$ ox. ext. opii liq., the patient being directed to lie upon the unaffected side. When the treatment succeeded, as it generally did, the patient was relieved from the dangers of suppuration following rupture or incision; and when it failed, the patient was certainly no worse than if the treatment had not been applied. Since the cases, to which reference has just been made, were all of the non-exanthematous type, the writer made investigations upon the ears of those affected with eruptive fevers. These were made daily, numbering 6,000, and included a total of 121, in the first series of which 65 were measles and 56 scarlatina in the 242 ears. There was distinct, undoubted inflammation in 84, of which 49 (20 per cent.) discharged and 35 recovered without discharge.

The second series included 97 patients (measles 10, scarlatina 87), or 194 ears. Of these 47 inflamed, and in 18 (9 per cent.) the inflammation was followed by discharge.

In the first series the progress of the case was not interfered with, unless discharge supervened; in the second the ovoids, impregnated with various drugs, were used; and in the third the treatment considered best in the second was systematically applied to every inflamed ear.

While the writer impeaches paracentesis as a routine treatment, he considers that the operation is unnecessary and even wrong in the great majority of cases.

Loeb.

II.—NOSE AND NASO-PHARYNX.

Rhinolith, or Foreign Body.

243. BALLENGER, W. L. (*Journal American Med. Ass'n*, April 9, 1898.) A man of 60 years had an offensive odor from the nose, which had existed for 30 years, and which proved to be due to what at first appeared to be rhinolith. Upon examining the foreign body it was found to be the breech-pin and nipple of an old-fashioned percussion-cap musket. The patient stated that 30 years previous a gun had exploded, destroying his left eye. The foreign body must have passed through the orbit, and possibly lodged in the ethmoidal cells or antrum of Highmore. The walls probably sloughed away, and the foreign body lay loose in the nostril. The specimen weighed 325 grains.

Scheppegrell.

The Treatment of Empyema of the Frontal Sinus.

244. BRYAN, J. H. (*Journal American Medical Ass'n*, Feb. 26, 1898.) The author has somewhat changed the method which he formerly published. The incision follows the eyebrow about two-thirds of its length, and then is slightly curved upward toward the median line. Access to the cavity is easier, and the scar is almost invisible.

In chronic cases, where there is extensive caries, it is impossible to procure healing in four to six weeks. In such cases it is of advantage to drain, for some time at least, through the external opening, the results proving better than where the external wound is closed by sutures at the time of the operation.

Scheppegrell.

Anterior Pillars of the Fauces, Their Abnormality, Etiology and Treatment.

245. CARPENTER, G. T. (*Journal American Med. Ass'n*, April 9, 1898.) The author refers to the dark red or reddish-blue color due to venous stasis in the pillars and

uvula, these being frequently covered with a tenacious mucus. There is also frequently fetid breath and a disagreeable taste in the mouth. The author believes this to be due to a diseased tonsil, or inflammatory processes in the naso-pharynx. Antiseptic gargles and local treatment is advised.

(The conditions described are frequently due to constitutional disturbances, such as alcoholism, lithemia, etc., which should not be overlooked in the treatment of these cases.—Scheppegegrell.) *Scheppegegrell.*

Removal of Foreign Body from the Nose After Twenty-Three Years.

246. CARRUTHERS, S. M. (*British Medical Journal*, Feb. 12, 1898.) The patient's nasal history dated from a fall upon his face, coincident with which she felt that there was a stone in her nose. After 23 years of various nasal experiences, her condition was relieved by the withdrawal of the stone by Lister's forceps. The whole stone was covered with a layer of blood-stained incrustation about as thick as a sheet of paper, and thickly studded over this were many rough projections, of which one or two groups were specially prominent. *Loeb.*

**Complete Congenital Occlusion of the Posterior Nares.
Report of a Case.**

247. CLARK, J. P. (*Boston Med. and Surg. Journal*, Feb. 24, 1898.) The patient, a girl of 18 years, applied for complete inability to breathe through the nose. The hard palate was narrow and high, and the upper teeth badly crowded. There was entire absence of the sense of smell, dryness of the throat, and during illness difficulty of breathing. A probe introduced into each nostril met an obstruction about 5 cm. from the anterior nares, and the forefinger introduced into the naso-pharynx discovered a firm wall in each chona, covered with mucous membrane and forming a continuous surface with the vault and sides of the pharynx, and meeting the septum a little in front of the posterior border. The naso-pharynx was small and undeveloped. The occluding walls were found to consist of bone, through which an opening was made by means of a trephine.

(The perforation of the obstructing wall is usually easy,

but it is difficult to keep the opening pervious. In two cases of unilateral occlusion in the practice of the reporter, the opening repeatedly closed until eventually what appeared to be an excessively large opening had been made, and in spite of this it was necessary in one case to introduce a dilator from time to time.—Scheppegegrell.)

Scheppegegrell.

A Case of Myxedema, with Prominent Nasal Symptoms.

248. CLEVELAND, A. H. (*Journal American Med. Ass'n*, March 5, 1898.) The patient, a woman of 38 years, complained of nasal obstruction, with attacks of sneezing. There was a peculiar waxiness of the nasal mucous membrane, which contrasted with the condition found in ordinary rhinorrhea.

As many of the symptoms of myxedema were present, such as dry thickened skin, capillary congestion over the cheeks, dryness and brittleness of the nails and hair, a diagnosis of myxedema was made and the dessicated thyroid tablets were administered, which gave satisfactory results.

Scheppegegrell.

Fracture of the Nasal Bones.

249. COBB, F. C. (*Journal American Medical Ass'n*, March 12, 1898.) It is usually easy to replace fractured nasal bones, but sometimes very difficult to keep them in position. The author, therefore, suggests a mechanical contrivance, which is placed over the head of the patient, to which is attached a lever which exerts a pressure against the nose, thus retaining it in its proper position.

Scheppegegrell.

A Case of Fibrinous Rhinitis.

250. DIXON, F. J. (*British Medical Journal*, Jan. 2, 1898.) A boy, age 10, was brought to the physician on account of bloody discharge from nose, giving history of cold, nasal obstruction and a slight ozena for two days. In the left side of the nose there was a purulent looking mass, which came away like rolled up membrane. This under the microscope was found partly muco-pus, but chiefly fibrinous. The mucous membrane of the side was sodden, and no polypus or foreign body was found. Treatment with antiseptic, alkaline lotion finally affected a

cure, but at no time were there constitutional symptoms or foreign bodies found.

The cast removed was not membranous nor a mere secretion, but was between the two. No bacteria were found, and, clinically, the features of the case suggest as a cause the stenosis causing pent up discharge and secretion.

In a similar case, Mr. St. George Reid found in cultures the micrococcus albus liquefaciens and bacillus termo of Vignal. *Loeb.*

On a New Case of Congenital Occlusion of the Right Choana.

251. GRADENIGO, Turin. (*Année. des Mal. de Lar. d' Oreille du Nez et du Phar.*, March, 1898.) There are but few cases known. This patient was a young man of 18, who noticed only a few years ago that his right nostril was closed up. The diagnosis was made by anterior examination. A probe could not pass into the naso-pharynx. The examination of the naso-pharynx was possible only after the rear end of the middle turbinated bone was amputated. The right nostril was full of pus; the middle turbinated body swollen. The sense of smell was normal, even in the right nostril. There was lessening of sensitiveness. The right ear was partially deaf. Under anesthesia of cocaine a hole was made with a large trocar. Through the canula of the trocar a Belloc's tube was inserted. On the wire a conical tampon of gauze was introduced into the opening. The next day the opening was enlarged with a prob-pointed knife, or a cutting forceps. Tamponade must be repeated for some time, in order to keep the opening from closing. *Holinger.*

A Contribution to Our Knowledge of the Etiology of Inflammation of the Accessory Sinuses of the Nose.

252. HOWARD. W. T., AND INGERSOLL, J. M. (*Amer. Jour. Med. Sciences*, May, 1898.) From a study of cases reported, the author believes that acute and chronic inflammations of the accessory sinuses of the nose are not caused by a single micro-organism or a single group of these. It is demonstrated, that with a few exceptions, (aspergilli and vermes) inflammations of those cavities are caused by bacteria. The bacteria found, as would be expected, are those that are commonly present in the buccal and nasal

cavities; in the former in health, and in the latter occasionally in health and usually in disease, such as acute and chronic rhinitis (both atrophic and hypertrophic), nasal tumors and the like. While these organisms are the most frequent invaders of these sinuses, there is a number of cases in which certain bacteria, less commonly present in suppurative processes, have been found.

It is interesting to recognize that the common agents in the causation of inflammations of other parts of the air-passages (the diplococcus lanceolatus, the pyogenic staphylococci and streptococci, the bacilli of the group of Friedländer's bacillus (*B. mucosus capsulatus*), the *B. diphtheriæ*, and the *B. influenzæ*) are the most important and the usual micro-organism found in inflammatory processes of these adjuncts to the respiratory system. The relation of the infectious diseases, both local and general, to these inflammations is of great importance.

There are two groups of these cases, the first in which the accessory sinuses are invaded by a direct extension of the inflammatory process, as in acute and chronic rhinitis, coryza, influenza, diphtheria, pharyngitis, tonsillitis, tuberculosis, syphilis, nasal tumors, erysipelas, and injuries; second, those cases in which parts of the body remote from the sinuses are primarily affected, as in erysipelas, articular rheumatism, pneumonia, phthisis, meningitis, and suppurations in general, or diseases in which the whole system is involved, as measles and scarlatina; in all of which the normal resistance of the sinuses is so lowered that bacteria which reach them from distant parts by means of the blood, or from neighboring parts by the spreading of the inflammatory processes, set up inflammation.

(In the enumeration of processes by means of which the accessory sinuses are invaded by direct extension of the inflammatory process, the authors have omitted periostitis and other inflammatory processes of the teeth. While these do not bear the constant etiologic relationship to diseases of the maxillary sinuses, as was formerly supposed, still this is the case in a considerable percentage of instances, many cases being observed in which the inflammatory process can be distinctly traced to a dental origin. —SCHEPPEGRELL.)

Scheppegrell.

Diseases of the Conjunctiva in Relation to Diseases of the Nasal Passages.

253. KEELY, ROBT. N. (*Jour. Am. Med. Ass'n.*, March 5, 1898.) It is now generally admitted that the relation of cause and effect exist between nasal affections and those of the conjunctiva. The obstinate and unsatisfactory course which many cases of conjunctivitis pursue is frequently due to neglect of proper attention to the nasal passages. It has long been known that conjunctivitis is dependent upon diseases of the lacrymal duct and sac, resulting from affect of the nostril. The proof of the causative action of nasal and ocular affections is shown by the disappearance of the latter on the removal or cure of the former. A number of cases are reported in illustration of this principle. *Scheppepegrell,*

Some Manifestations of Syphilis in the Upper Respiratory Tract.

254. KENEFICK, J. A. (*Medical News*, February 26, 1898.) The various lesions of syphilis are found in the nose and throat and at all periods of life. The early lesions frequently escape attention, and a comparatively insignificant nose or throat affection, for which the patient seeks relief, may be the first intimation of the true condition. The "snuffles" of the infant is characteristic of inherited disease, but not pathognomonic.

Primary syphilis of the nose constitutes only three or four per cent. of all the cases of extragenital infection. The case of chancre of the septum observed in Dr. Knight's clinic at the New York Post Graduate Hospital is, therefore, interesting. In the treatment of syphilitic cases, an examination of the condition of the kidneys may be of vital importance. In cases in which the renal function is impaired, stomatitis, and even uremic symptoms, may be easily developed. *Scheppepegrell,*

Nasal Polypi—Their Diagnosis and Radical Treatment.

MACKENZIE, G. HUNTER. (*Lancet*, February 5, 1898.) When a polypus develops in the posterior region of an abnormally small nostril, the diagnosis may be made by directing the patient to blow through the affected nostril while the other is held closed. The polypus will be seen to advance and recede with expiration, as a valve.

To discover the smaller polypi in the region of the middle turbinated, it is first necessary to clear away the pus or mucus present, and then make gentle use of the probe by means of which they can be more or less freely moved. Sometimes they are visible, at other times they are obscured by a narrow nostril, or they lie beyond the bony or cartilaginous septal projections, and hence can be diagnosed and removed only after these are removed.

For the radical treatment the hot or cold snare and curette are advised, while the chromic acid treatment is opposed. In the case of small sessile buds on the middle and superior turbinate, where the snare cannot be employed, recourse may be had to the electro-cautery, but the curette is more advantageous.

The curettes with adjustable handles, made by Young & Son, Edinburgh, are used by the writer.

No local agent can be relied on to prevent the recurrence of nasal polypi; some are painful, most are useless, and all are tedious. When, in connection with the symptoms of polypi, there exists a discharge of blood or rapidly forming pus with a putrefactive odor, an implication of one or more of the accessory cavities is to be suspected.

Under these circumstances, the first thing to do is to clear the nose of polypi, and after waiting for a short time, in the hope that this will cause a cessation of the discharge and the sinus disease, it will be necessary to open, curette and drain the affected cavities.

Hemorrhage in a mucous polypi almost invariably indicates a high degree of malignancy. In malignant cases it is sometimes possible to operate soon enough to accomplish a cure.

Loeb.

An Unusual Case of Blood-Cyst of the Posterior Nares.

256. MACKENZIE, J. N. (*Jour. Am. Med. Ass'n*, Feb. 26, 1898.) The patient was a young lady of 23 years. As the result of the imperfect extraction of a tooth there was necrosis of the jaw, with subsequent exfoliation of bone, leading to a more or less complete obliteration of the lower portion of the antrum. This had happened five years before consultation. For three years previous the patient had suffered from symptoms referable to the orbit and antrum.

On examination a small glistening point was seen, resembling the appearance observed in fibroma of the nasal cavity. The right side of the nose was occluded. The mass looked very much like a child's toy balloon. The envelope of the cyst was extremely attenuated, appearing as if it was scarcely a line in depth. An appointment was made for her to return the same day of the examination, but in the meantime a spontaneous rupture occurred, and when examined the following day no trace of the growth could be found. The inflammatory process which originated the affection probably started in the antrum as a result of the necrosis of the bone, and from this the edema and the subsequent formation of the cyst had resulted. Some cases of large serous cyst have been reported.

Scheppegrell.

Statistical Researches on Mucous Polypi of the Nasal Cavities in Children and Adults.

257. MARTHA. (*Ann. des Mal. de Lar. d' Oreille du Nez et du Phar.*, March, 1898.) Nasal polypi in children are rare. In four years the author removed polypi from the nose in 133 patients. Only two of them were children under 15 years, and nine from 15 to 19 years.

Men are more frequently afflicted with polypi than women. The years from 30 to 50 have the largest number. The author reports two more cases in boys of 13 years each.

Holinger.

The Asch Operation for Deviations of the Cartilaginous Nasal Septum, with a Report of 200 Operations.

258. MAYER, E. (*Med. Rec.*, Feb. 5, 1898.) Since the Asch operation was performed 15 years ago, the author has had opportunities to note the effects in every form of deviations. He believes it to be the best operation yet devised for the cure of deviations of the cartilaginous septum on account of its simplicity, immediate benefit and the permanent nature of the results obtained. A record of 122 operations performed at the New York Eye and Ear Infirmary is given, every case of which was cured.

Scheppegrell.

The Treatment of Sinusitis (Maxillary Sinus Excepted).

259. MOURE, Bordeaux. (*Revue Hebd. de Lar., d' Otol. et de Rhin.*, March 5, 1898.) Read before the Congress in

Moscow, August, 1897. In an introduction to this paper a number of good works on this object are mentioned. For the author the indications of treatment which Grünwald gives are not precise enough. He knows of four forms of inflammation:

1. Periodical or constant discharge of mucus, or mucopurulent secretion, without other symptoms.

2. Chronic suppurations, blenorrhea of the sinus; polypi and swellings of the mucous membrane occlude the orifice of the cavities.

3. The whole cavity is filled with fungoid growths, and formation of external fistulas.

4. Inflammation of several or all the sinuses at once.

In the different sinuses these three forms are then studied. For the mucous form of ethmoidal sinusitis the author advises fumigations, or douches (humages), with decoctions of aromatic plants, or a prescription of—

Menthol, aa. } 5.0.
Goudron, }

Tinct. eucalypt, 250.0.

Teaspoon to 1 qt. of hot water,

or a spray with different solutions. The fungous form of ethmoidal sinusitis must be freely drained. A number of instruments are mentioned. The author prefers cutting forceps and cold snare, afterward insufflations of powders. The third form with fistulas has to be freely opened from the outside. Due consideration must be given to disfigurements from scars in females. Frontal sinusitis may be mistaken for ethmoidal sinusitis. The treatment is mainly catheterization of this cavity. Suppuration of the frontal sinus may be treated by simple probing, or intra-nasal opening, or finally external opening of the sinus. The two first proceedings are uncertain. and often dangerous. The external operations are next described. The fistular form must be treated immediately with Ogston-Luc operation.

Sphenoidal sinusitis: The mucous forms are very similar to naso-pharyngitis. The author advises little or no special treatment. The fungous form needs all possible attention. The instrument used to open the sinus is the curette. Mr. Moure doubts if the electric trephine is very

desirable for men who are less dexterous in handling them than M. Schmidt and Spiess. After opening, washing with chloride of zinc 7 to 10, or nitrate of silver 1 to 5 is advisable. The carious form of sphenoidal sinusitis may be opened directly, or through Highmore's antrum.

Combined inflammation of all the sinuses. Electrolysis was advised in this disease. Mr. Moure rejects it completely, because it did not give him any results whatever. In the fistular form of inflammation of all the sinuses it is best to enter through the frontal sinus, and break down all the partitions between the different cavities, thus forming one cavity. This may be controlled according to circumstances, from the outside or from the nose.

Holinger.

Clinical Observations on the Use of the Aqueous Extract of Suprarenal Capsule in Operations.

260. MULLEN, JOS. A. (*International Clinics*, Vol. IV, 7th Series.) The aqueous extract of the suprarenal capsule increases the anesthetic effect of cocain and produces anemia of nasal mucous membrane, at the same time contracting the sub-mucous tissues so that the mucosa is held down tightly to the periosteum. By modifying the post-operative swelling it encourages rapid healing and diminishes the danger of secondary hemorrhage. A 5 per cent. solution of cocain is first applied to the nasal mucosa, and, 10 minutes afterward, a solution of aqueous extract of suprarenal capsule, which is preferably applied by cataphoresis.

The solution is made from dessicated powder of the suprarenal capsule of the sheep, in the strength of 5 grains to the dram of cold saturated boric acid solution. As it decomposes easily, it should be prepared for each operation. A number of cases are reported showing the useful influence of the drug.

Scheppegevell.

Observations on Some Pathologic Conditions of the Nasopharynx.

261. MUSSON, E. E. (*Jour. Am. Med. Ass'n*, March 5, 1898.) In addition to a report of the usual clinical cases, a description of three cases of direct infection of the nasopharynx is given. The first case, a student in a bacteriological laboratory, accidentally broke a test-tube contain-

ing a culture of streptococci, which resulted in intense virulent inflammation of the tissues of the naso-pharynx. Bacteriologic examination showed the streptococci in the discharge.

The second case was a patient who, just recovering from acute rhinitis, superintended the opening of a case of ostrich feathers in the raw state, packed in camphor. Within twelve hours acute nasopharyngitis developed, with profuse purulent discharge and a temperature of 100 degrees. The third was the case of a physician who had several attacks of acute adenoiditis, following exposure to cases of diphtheria.

Scheppegevell.

Questions Regarding the Etiology of Adenoid Vegetations as Found in the Naso-Pharyngeal Cavity.

262. O'TOOLE, M. C. (*Jour. of the Am. Med. Ass'n.*, March 5, 1898.) The author has questioned mothers of children with adenoid growths, and has in every case found that they had been affected with abnormal uterine or vaginal secretions at the time of the birth of the children so affected. From these observations, he believes that acute suppuration of the middle ear in infants is, in almost all cases, the result of gonococci-bearing, maternal vaginal secretions during parturition, and that catarrhal secretions under like conditions are responsible for the existence of abnormal lymphatic follicles and adenoid vegetations as found in the pharyngeal vaults of older children.

Scheppegevell.

Metastatic Uvelitis in Both Eyes, Causing Blindness.

263. POSEY, W. C. (*New York Med. Journal*, January 22, 1898.) The patient, a woman of 27 years, while working in a laundry, had developed severe nasal irritation and progressive blindness, until at the end of two years the sight was entirely gone.

In the legal suit which was instituted, it was shown that, in certain parts of the process at the laundry, chlorine gas, sulphuric acid and oxalic acid had been used in varying strengths for bleaching and cleansing purposes. The author believes the eye affection to have developed from the severe inflammatory process of the nostrils and of the accessory sinuses.

(The article, however, gives no evidence of an examination of the accessory sinuses.—SCHEPPEGVELL).

Scheppegevell.

The Much Abused Nose.

264. ROGERS, F. T. (*Atlanta Medical Weekly*, January 29, 1898.) A review of the surgical and medical treatment of the more common affections of the nasal chambers. *Scheppegrell.*

Stomach Ailment from Nasal Secretion.

265. RUMBOLD, THOS. F. (*Virginia Medical Semi-Monthly*, April 22, 1898.) The post-nasal secretion contains many forms of pathogenic microbes, and when this is continually swallowed, as is frequently the case, the development of gastric disturbances is easily understood. The important treatment in these forms of stomach ailment is the removal of the cause by efficient treatment of the nasal affection. *Scheppegrell.*

A Study of the Anatomy of the Maxillary Sinus.

266. SHAMBAUGH, G. E. (*Phil. Med. Jour.*, April 16, 1898.) The structure of the antrum is a subject of great variations, while both the diagnosis and treatment of diseases of the sinus are closely dependent on a knowledge of the anatomy for their accurate and safe conduction. Accidents arising from an imperfect knowledge of the anatomy are not rare. Zuckerkandl has given a complete description of the anatomy of the antrum in his work on "Die Normale und pathologische Anatomie der Nasenhöhle." The weakest points in the walls of the antrum are found in the region of the nasal fontanel in the middle meatus, the middle of the orbital wall, and the temporal wall just above the wisdom tooth.

The indirect passage into the antrum through the natural opening, the location of this opening in the depth of the infundibulum, and its position at the highest point in the antrum make it unfavorable for draining secretion from the antrum; while its location in the depth of the infundibulum makes it possible for secretion from the frontal sinus and anterior ethmoidal cells to drain into the sinus. The floor of the antrum may lie much above the floor of the nose, and it may lie much below this point. The hard palate may become excavated by an enlarged antrum. Stenosis of the antrum is not uncommon. This is a very important practical subject on account of the dif-

ficulty encountered in entering a stenosed antrum. The most marked stenosis is due to a sinking in of the facial and nasal walls.

The article concludes by giving some anatomic points to be considered in making (1), transillumination test; (2), exploratory puncture, opening the antrum for drainage. The exploratory puncture from the nose should be made with a curved needle. When puncturing from the inferior meatus, the point should be directed well up under the inferior turbinate. Puncturing lower down, the antrum would be entirely missed, if the floor of the sinus were high. When puncturing from the middle meatus, the point should be inserted well back and close above the base of the lower turbinate, and the point should be directed out and down. This is to avoid wounding the orbit, an accident which the author had in two cases.

The best place for opening the antrum from the alveolus for drainage is through the socket of the second bicuspid or the first or second molar, as here the floor of the antrum lies nearest the alveolar surface. On account of the abrupt rise in the floor of the antrum in front of the second bicuspid, it is often difficult to reach the antrum from any point in front of this tooth.

There are cases of stenosis in which it is impossible to reach the antrum from any point in the alveolar surface; in such cases the attempt would lead to perforation either into the inferior meatus or out into the cheek. In opening from the canine fossa, one sometimes encounters a very thick wall. An opening from the inferior meatus can be made in suitable cases, and should be made up under the turbinate. In attempting to enter near the floor of the nose, the antrum would be missed if the floor of the sinus were high, and there would be danger of perforating the bone and wounding the cheek.

Scheppegrell.

Adenoid Vegetations and Laryngeal Stridor.

267. SMITH, EUSTACE. (*Lancet*, March 19, 1898.) An infant, aged one month, was admitted to the hospital suffering from noisy breathing since birth. The inspiratory crow could be heard at some distance and at times the breathing became very loud and stridorlous, the face be-

coming livid, the chest wall drawn in deeply, and the child showing every indication of lack of air. In about an hour the dyspnea disappeared and the crowing without discomfort remained. Digital examination revealed the presence of adenoids. Three months later the child was again admitted on account of a suffocative attack of unusual severity; the previous symptoms were still present, though the child was physically worse. The adenoids were removed under chloroform. The stridor gradually diminished and in about two weeks it had disappeared altogether. The stridor afterward slightly returned whenever the child "took cold."

Loeb.

Modern Pathology and Therapy of Acute Rhinitis.

268. SOLENBERGER, A. R. (*Jour. Am. Med. Ass'n*, Feb. 26, 1898.) Acute rhinitis is simply the effect of many conditions, the majority being constitutional. Scientific treatment should refer to the cause as well as the effect.

Scheppegrell.

Non-Specific Perforation of the Nasal Septum.

269. STRAW, J. R. (*Jour. Am. Med. Ass'n*, Feb. 26, 1898.) The etiology of these cases the author believes to be due primarily to the Wisconsin climate, which, during three or four months of the year, is extremely cold. He advises the application of a simple ointment.

(In the southern portion of the United States, where the climate for three or four months of the year is extremely warm, these perforations are by no means infrequent.—*Scheppegrell.*)

Scheppegrell.

Plastic Operation for Saddle-Nose.

270. WARBASSE, J. P. (*Brooklyn Med. Jour.*, February, 1898.) An incision is begun at the muco-cutaneous junction about half way down the ala of the nose, and carried upward along the margin of the nostril, across the septum and down on the opposite side to a corresponding point. The skin is then dissected up over the whole extent of the external nose, a narrow knife and sharp-pointed scissors being used. The skin is thus dissected free from the alæ and the cartilaginous tip of the nose, and laterally out upon the superior maxillary bone and its nasal process to the canthi of the eyes, and above as far as the frontal bone.

This procedure over so great an extent and through so narrow an opening is necessarily very tedious. After complete hemostasis, a bridge of hard rubber is inserted and the wound closed by a subcuticular suture of silk. A dry compress is then applied over the whole, this being held in position by adhesive straps. A case illustrated by a photograph shows the usefulness of the operation.

Scheppegregell.

Localization of the Pains in Inflammation of the Accessory Cavities.

271. WEIL. (*Jour. Am. Med. Ass'n*, April 16, 1898.) The author considers the information thus derived quite important in the diagnosis. The closer the *locus morbi* to the surface the more distinct and constant the localization of the pains. Fleeting neuralgic pains and disturbances in the nasal passage must be differentiated. The latter can be eliminated by cocainization. The pain from inflammation of the deeper lying sphenoidal sinus is frequently felt in the back of the head, still oftener in the middle of the brow between the eyebrows and the frontal eminences.

(Pain is a useful factor in the diagnosis of *acute* inflammation of the accessory sinuses, but is absent in the majority of chronic cases. It is sometimes met with, however, in acute exacerbations of the latter.—Scheppegregell.)

Scheppegregell.

Acute Empyema of the Frontal Sinus.

272. WENNER, R. J. (*Cleveland Jour. of Med.*, April, 1898.) In all the cases observed by the author, as soon as the *hiatus frontalis* was closed the patient complained of extreme dryness of the corresponding nostril. An effort should first be made to pass a probe, and a 1 per cent. solution of cocain applied by means of a spray at intervals of 30 minutes to shrink the tissues which may obstruct the opening. Hot and cold applications over the sinus may also be used.

If these methods do not prove successful and the symptoms are urgent, an external opening should then be made. The sinus is then irrigated, curetted and packed with iodoform gauze, the opening of the passage of the *ductus frontalis* having been first re-established. The

gauze should be removed daily, and the cavity irrigated with a solution of bichloride of mercury, 1 to 5000.

(In acute cases, curettement is rarely demanded. In the majority of these cases also, after the normal opening has been re-established, the external wound should be closed, as this gives equally satisfactory results and avoids the deformity which results from leaving the wound open and packing with gauze.—Scheppegegrell.)

Scheppegegrell.

The Use of Oil for the Destruction of Larvæ in the Nasal Chambers.

273. SCHEPPEGRELL, W. (*Laryngoscope*, Feb., 1898.) The respiration of the larvæ is carried on by an intricate system of tubes (pulmonary trachea), which open by pores (spiracles or stigmata,) in the sides of the body. These are blocked up by the free use of oil, causing suffocation.

A case is reported in which glymol was used first as a continuous spray, and later the patient being placed in the horizontal dorsal position, with the head hanging down, the nostrils were completely filled by pouring the warm oil into the nasal cavities. In four sittings all the larvæ were destroyed, though a week later two were dislodged.

Loeb.

Nasal Bacteria in Health.

274. PARK, W. H. AND WRIGHT, JONATHAN. (*Jour. of Lar., Rhin. and Otol.*, March, 1898.) The writers' experiments show that in 36 specimens of normal nasal mucus no bacteria developed in 6 cases, while in 30, more or less appeared. However, there is a comparative scantiness of germs in the healthy nasal mucus, probably due to the action of gravity by the passage of the clear serum from the regions of the nose, to which the inspired air does not have free access, thereby washing away the bacteria deposited by the tidal air; to the action of the cilia, to the fact that the nasal mucus is not a good medium for the growth of bacteria; to the filtering of the vibrissæ; to the fact that ordinary air contains few pathogenic bacteria.

The conclusion is that for bacteria which have developed in the blood or secretions of other individuals, the

bactericidal power of the nasal mucus is little or nothing, and cannot be depended upon to prevent an infection from virulent bacteria if they are carried into the nose by instruments. *Loeb.*

Tuberculosis of the Nose, with Report of a Case of Primary Tuberculosis.

275. THIESEN, C. F. (*Laryngoscope*, February, 1898.) The patient, a strong, healthy man aet 36, gave no symptoms beyond those of coryza. Examination showed the left inferior turbinal and septum somewhat inflamed, with a slight movable firm growth somewhat larger than a small cherry upon the cartilaginous septum, to which it was attached by a broad base. After a month the tumor, which had somewhat increased in size, presented a small ulcer at one point. Under iodide of potassium the tumor increased in size, until finally, patient consented to the removal by means of a cold snare. The specimen proved to be a granulation growth containing numerous tubercle bacilli. The site of the growth was cauterized, and applications of lactic acid (beginning with 40 and increasing to 80 per cent.) were used, and 19 months later the man shows no recurrence or morbid condition on the septum.

Loeb.

Peritonsillitis—Etiology and Treatment.

276. BALDWIN, K. W. (*Jour. of the Am. Med. Assn.*, March 12, 1898.) The local application of turpentine is advocated, this being added to equal parts of compound spirits of lavender, the taste of the turpentine being disguised by a few drops of anise or gaultheria. In some cases the turpentine is used in its full strength. It is applied by means of a cotton applicator to all the inflamed tissues, to the crypts of the tonsils, and where possible between the tonsil and the pillars of the fauces. If used early, this treatment will abort an attack; later, it will prevent the formation of pus and the involvement of the opposite side. *Scheppegrell.*

Certain Conditions of the Tonsils which Limit the Use of the Tonsillotome.

277. BLISS, A. A. (*Jour. of the Am. Med. Assn.*, March 12, 1898.) Those cases in which the tonsillotome

cannot be used are enlarged tonsils bound down by connective tissue, capsulated or adherent to the pillars; also in the hard nodulous sclerosed tonsils which are diffused irregularly over the space between the faucial pillars.

Scheppegrell

III.—MOUTH AND PHARYNX.

What Operation Can do for Cancer of the Tongue.

278. BUTLIN, HENRY T. (*British Medical Journal*, February 26, 1898.) Prior to the end of 1896, the writer operated upon 53 cases in hospital, and 49 cases in private practice, with the following results:

Hospital cases:—Died of operation, 9; lost sight of 7; recurrence *in situ*, 8; affection of glands without recurrence, 16; died later, cause unknown (probably cancer), 4; well within three years after operation, 2; well more than three years after the operation, 7. Total, 53.

Private cases:—Died of operation, 1; recurrence *in situ*, 10; affection of glands without recurrence, 12; died of other causes than cancer of the tongue, within three years, 4; well within three years after operation, 9; well or died of other causes more than three years after operation, 13. Total, 49.

Of the latter, one case is recorded as having died of the operation. In this case the disease had progressed so far as to necessitate a very extensive operation. The results obtained are better in private than in hospital cases, inasmuch as in private practice patients are, as a rule, better educated and more intelligent, and hence appreciate the wisdom of an early operation. The latter are, therefore, physically and in every respect better subjects for operation.

If the disease affects the anterior two-thirds of the tongue, the prognosis is by far more favorable than if it affects the dorsum. The latter class is especially unfavorable when complicated with involvement of the tonsils and adjacent regions. Among the private (cured) cases the glands were not removed. Among the hospital (cured) cases, the glands were removed in 5 cases, and 4 of these 5 cases revealed a beginning cancerous adenitis,

Some London surgeons insist on a removal of the whole tongue in every case of cancer. Among the 102 cases enumerated, removal of the entire tongue has been resorted to but 16 times, with the following results:

Died of operation, 4; died very soon of other causes (of bronchitis and laryngitis), 2; recurrence *in situ*, 5; affection of glands without recurrence, 1; lost sight of, 3; well more than three years after operation, 1. Total, 16.

Removal of the entire tongue is a far more serious operation than the partial removal. The patient is maimed and incumbered not only in speech, but in many other ways. This operation can only be justified as a routine operation by proving that a recurrence in the mouth would have been avoided by the removal of the entire tongue in cases of cancer.

In 66 cases where there might have been a recurrence, it was observed in only 18 cases; and of these 18 cases, 5 had the entire tongue removed, in 5 others recurrence took place in the floor of the mouth or in the anterior half arch of the palate, in two instances the disease was found to extend to the epiglottis, in one case an error of judgment led to the removal of too small a part. In operating for removal of cancer, the writer advocates the removal of an additional three-fourths inch of apparently healthy tissue. When disease affects the border of the tongue he removes half of the tongue to an inch behind the margin of the disease. When the disease is near the tip or forepart of the dorsum, the forepart of the tongue is removed. The following are the results obtained:

Duration since operation—1 to 2 years, 6; 2 to 3 years, 4; 3 to 4 years, 5; 4 to 5 years, 3; 5 to 6 years, 4; 6 to 7 years, 1; 7 to 8 years, 1; 8 to 9 years, 2; 9 to 10 years, 1; 10 years, 1; 12 years, 2. Total, 30 cases, out of which 20 or two-thirds lived more than three years.

The results are far more favorable than the results mentioned in the report ten years ago, when the percentage of cured cases was 8.5, while Barker, in his statistics, maintained a percentage of 5. The percentage of cured cases at present is about 26. The prognosis of cancer of the anterior two-thirds of the tongue, whether in substance or border, is not bad when compared with the prognosis of cancer in other parts of the body.

The glands usually become enlarged a few months after the affection of the tongue appears. Some few cases are reported where the glands become enlarged in three weeks. Several cases are reported where the glandular enlargement and affection of the tongue were noticed at one and the same time.

One case presented a warty growth on the tongue. Growth was removed, but showed no general nor microscopic signs of cancer. The same border of the tongue became affected with epithelioma one and a half years thereafter, and one-half of the tongue was removed. The glands became enlarged in three or four months, and the patient died after a short time with no signs of recurrence in the mouth.

In another case of epithelioma of the forepart of dorsum, seven months after operation, the glands at the bifurcation of the carotid became enlarged, and in a few months the patient died, with no recurrence in the mouth.

In another instance, enlarged glands were removed from beneath the parotid gland; patient having had an epithelioma removed several months previous. This patient died soon thereafter. Cancer of the tongue is locally malignant, being confined to the tongue and surrounding lymphatics. About 70 per cent. of all cases may be treated successfully by operation without fear of recurrence *in situ*. Of these, 70, 30, or 40 per cent. will die by reason of a secondary affection of the cervical glands. If every case of cancer of the tongue is complicated by involvement of the glands the operation may be combined with removal of the lymphatics, or the lymphatics may be removed at first sign of enlargement. Experience proves that an enlargement oftentimes is not recognized at its beginning, and when perceived, the glands are difficult to remove. A nodule is occasionally overlooked. It is true that the lymphatics pursue a varied course in different individuals, thus tending to confuse matters for the operator.

The lymphatics of the tongue pass through one or more of four groups of glands.

1. Submental group, beneath floor of the mouth behind lower jaw;
2. Submaxillary group, some of which actu-

ally lie in the substance of the salivary gland; 3. The carotid; 4. The carotid, whereon lies the bifurcation of common carotid.

The lymph of the anterior half of the tongue passes probably only rarely through the parotid glands, and usually by one or more of the anterior group of glands. Lymphatics are frequently found imbedded in the submaxillary glands and sometimes they may be imbedded in the parotid glands. Therefore, in an operation for the removal of the lymphatics it would be wise, in addition to the excision of the anterior three groups of glands, to remove also the parotid glands or others which may be affected. The operation devised by Butlin is as follows:

The anterior triangle is thoroughly exposed by an incision 7 inches long on the anterior border of the sternomastoid muscle, from the mastoid process to below the thyroid cartilage, and a second incision from the symphysis of the lower jaw to the first incision about the level of the thyroid cartilage. The triangle is carefully dissected upward, beginning at the apex. The incidental vessels severed are clamped, etc. The submaxillary salivary gland is taken out, and the connective tissue and glands are taken out en masse, The submental and parotid glands are, however, not taken out so readily. The patient is confined for 8 or 10 days after the operation. It is rather hazardous to excise the glands when removing the affected portion of the tongue. Therefore, the patient is allowed to recuperate 3 or 4 weeks before subjecting him to the second operation. The importance of this latter operation should be impressed upon all patients so afflicted.

Loeb.

Hare-Lip.—A Case in Practice.

279. CARPENTER, GEO. T, (*Jour. Am. Med. Ass'n*, April 30, 1898.) The patient, a woman of 22 years, had suffered from birth from double hare-lip, and also cleft of both hard and soft palate, which were very large, but nature had largely overcome the latter defect by hypertrophy of the inferior turbinated body. The voice, in consequence, though not good, was much better than that of many with much less defect. Three excellent photographs of this case show the advantage of operative intervention.

Scheppepegrell.

Congenital Cleft Palate.

280. COOMES, M. F. (*Louisville Med. Mon.*, May, 1898.) A report of two cases in which the usual operation was performed. The advantage of early operation, not later than the sixth year, is advocated. *Scheppegrell.*

Practical versus Theoretical Tonsillotomy.

281. COULTER, J. H. (*Jour. Am. Med. Ass'n*, Feb. 26, 1898.) A plea for tonsillotomy by cautery dissection as suggested by Dr. Pynchon. *Scheppegrell.*

Treatment of Chronic Inflammation of the Tonsils.

282. ELLEGOOD, J. A. (*Jour. Am. Med. Ass'n*, March 12, 1898.) A resumé of the therapeutic and surgical method of treating these cases. *Scheppegrell.*

Some Modifications of the Operation for Closing Congenital Fissures of the Palate.

283. FILLEBROWN, THOS. (*Boston Med. and Surg. Jour.*, Feb. 3, 1898.) The plan suggested renders it possible to close the whole cleft of the hard and soft palate in one operation. A modification of the ordinary closing operation of Langenbeck is lateral incision then described, being made external to the tonsils to relieve the tension of the soft palate. Wire sutures and discs take the strain and successfully counteract the muscular action and hold the line of union immovable, so that a guard plate is unnecessary. *Scheppegrell.*

Salivary Calculi.

284. FREUDENTHAL, W. (*Jour. Am. Med. Ass'n*, Feb. 26, 1898.) The growth and formation of salivary calculi begin years before their detection. These ducts sometimes contain large stones without producing any symptoms. In the three cases reported the calculi were found in Wharton's duct. The author believes the comparatively larger proportion of mucin, a substance which seems to possess considerable adhesive properties, and which seems to favor the deposit of organic salts, is responsible for the fact that these calculi form more freely in Wharton's duct.

(The fact that gravity aids in the discharge through Steno's duct and opposes the flow through Wharton's is probable, also an etiologic factor in the larger number of calculi found in the latter.—*Scheppegrell.*)

Scheppegrell.

Croupous Tonsillitis.

285. GLEASON, E. B. (*Atlanta Med. Weekly*, Jan. 29, 1898.) Croupous tonsillitis may frequently be avoided by washing out each affected crypt with peroxide of hydrogen, by means of Blake's middle ear canula attached to a hypodermic syringe. An application of a 12 per cent. solution of nitrate of silver is then made into each crypt by means of a fine Allen probe, to which a few fibers of cotton are attached. This may be repeated two or three times daily, and will frequently result in a cure the second or third day. *Scheppegrell.*

Tuberculosis of the Tonsil.

286. OPPENHEIMER, SEYMOUR. (*Med. News*, Jan. 15, 1898.) Tuberculosis of the tonsil may be primary or secondary, the former being very rare and the latter of frequent occurrence. Primary tuberculosis of the tonsil may develop pulmonary tuberculosis by infection through the lymphatic system. The local symptoms are principally pain and dysphagia, which may be quite severe in form.

The diagnosis is usually easy on account of the concomitant pulmonary changes. The differentiation is from lupus, syphilis and cancer, that from syphilis being difficult, as there may be double infection. The therapeutic test will assist the diagnosis. The prognosis is very unfavorable. The author refers to curettement of the ulcers with a sharp spoon and the application of lactic acid.

Scheppegrell.

The Supratonsillar Fossa and Its Affections.

287. PATTERSON, D. R. (*Jour. of Laryng.*, April, 1898.)

This particular part of the throat, which has long been considered a large tonsillar crypt, has been subjected by the writer to considerable observation, and he thus describes its anatomy:

If the tonsillar region of a child or young adult be inspected it will generally be found that the tonsils are fairly well marked, each gland, though embedded between the pillars of the fauces, being well circumscribed and readily differentiated from the surrounding structures. The opening of the various crypts are seen the inner or superficial aspect, and toward the upper part these are usually larger.

If one carefully observes the anterior palatal arch (arcus glosso-palatinus,) there may be seen a fold of mucous membrane arising from its free border, and stretching backward toward the tonsil, which it partially covers.

This fold, which possesses considerable importance, has, in well marked instances, a triangular shape, and to it His has given the name *plica triangularis*. At its apex it may be seen to blend with the arch and become lost in the velum palati; the base disappears in the structures at the root of the tongue, whilst the free edge may extend over the tonsil for a variable distance, and even be closely adherent to the gland. The enlarged tonsils of children frequently show it in a characteristic form, where it covers the anterior or buccal surface and gives to it a smooth appearance, in marked contrast to the uncovered part with its network of cryptic orifices.

At the upper part of the tonsillar region (interstitium interarcuarium) (His), and immediately behind the plica, a probe suitably curved may be passed into a cavity which extends into the soft palate for a variable distance, and bears an important relation to the tonsil. This space has been termed by His the *supratonsillar fossa*, a name appropriate enough, perhaps, to a majority of the cases, but not strictly applicable to all. While it is most undesirable to multiply names, the addition of the term *palatal recess* would be more accurate and free from objection, and at the same time in strict keeping with the designation of its analogue, the *pharyngeal recess* (*fossa of Rosenmüller*). But the former appellation has just received the imprimatur of representative anatomists, and been accepted in the new nomenclature, so that the suggestion of any further title, however commendable, is scarcely to be justified.

Complete examination of the space cannot be carried out in the living subject, but sufficient may be made out to satisfy oneself that it is very different from a large or dilated crypt, and it is more than probable that the occasional presence of a wide crypt at the upper part has led to the confusion.

DEVELOPMENT OF THE FOSSA.

Situation and Relation of the Fossa.—This depends upon

(1) the disposition of the plica and (2) the development of the lymphoid tissue, though it is possible that the second visceral cleft has some influence upon the extent of the recess. Sometimes the plica is but slightly marked, at times it appears merged in the anterior pillar and not infrequently it covers the whole of the anterior surface of the tonsil. The mode of development of the lymphoid tissue is an important factor in modifying the fossa, especially in three particulars:

Between the fourth and fifth month of fetal life the anterior palatal arch widens and forms the free edge of a triangular fold of mucous membrane (plica triangularis), which projects behind over the groove (sinus tonsillaris) in which the palatal tonsil is developed.

According to K lliker, the tonsil at the fifth month is a smooth sac, with fissure-like opening and several small cavities, the internal or median aspect of which looks like a valve, the latter being evidently the plica triangularis. Lymphoid tissue forms in the sinus or groove, and almost completely fills it, constituting thereby the tonsil.

According to the degree in which this is affected, and to the mode of arrangement of the plica, a number of variations are met with. But in nearly every instance there is left a small recess (the fossa supratonsillaris,) at the upper part of the interstitium in relation to the apex of the tonsil, and covered by the freed edge of the plica,

THE SITUATION AND RELATION OF THE FOSSA.

These are influenced by two main considerations. First, the disposition of the plica; second, the development of the lymphoid tissue. The influence of the former is plain. Sometimes the plica is slightly marked, being mostly conspicuous as a free edge covering the outlet of the fossa at the upper part of the fossa. Its lower part may appear merged in the anterior pillar, from which, however, it can usually be distinguished. As the tonsil disappears the plica recedes and approaches the posterior pillar more, and may be found traversing the interfaucial space obliquely downward and backward.

The space is modified by the development of the lymphatic edge in the following ways:

(a.) Where the body of the tonsil is well developed and the upper part but slightly, the fossa is generally a wide space occupying the apex of the interstitium, and may be readily examined in its extent with the help of a rhinoscopic mirror. Bounded in front by the plica and the anterior pillar, it is open to the fauces, and in such a condition retention of discharge is, of course, hardly possible.

(b.) If the upper part of the tonsil is well marked, the fossa ordinarily opens on the upper and anterior aspect of the interstitium, being bounded behind by a process of the gland which extends upward. This is the commonest form and the most important, from the circumstance that the plica lies closely over its narrow outlet.

(c.) A rare condition of the fossa was met with where it lay to the upper and posterior aspect of the tonsil. The adenoid tissue had developed upward behind the anterior palatal arch, and occupied closely the front part of the interstitium. In the cases observed there was certainly a small space covered by the plica in front, but behind the tonsil, nearer the posterior pillar, the recess was much greater, and in one instance of considerable size, from which large cheesy masses were repeatedly removed. In all the cases the condition gave the appearance as if it were produced by a prolongation upward of the lymphoid tissue, which had divided the upper region of the interstitium longitudinally.

Extent.—In one instance the fossa extended as far as the ramus of the jaw; it may bend over the apex of the tonsil and dip down until it comes in relation with the superior constrictor and other deep structures; it occupies the soft palate to a variable degree.

Frequency.—Coincident with the atrophy of the tonsil the fossa becomes more shallow, and it may be represented by nothing more than a dimple. The writer has never failed to find it in children and young adults. It is common to find it of any considerable size later in life.

Suppurative disease of the supratonsillar fossa is met in a variety of forms. There may be a thin scanty flow of pus, or it may be more abundant and of a thicker consistency. Cheesy matter, pus and particles of grit, or even a calculus may be found within the fossa, likewise

masses of leptothrix and granulations. Clearing out the space and brushing it with a caustic solution is usually only palliative. Collections of pus in the fossa sometimes discharge periodically, and closely resemble an empyema (of a soft walled space). Three characteristic cases are described in which treatment was followed by recovery. For treatment in many cases it is sufficient to enlarge the narrowed opening of the fossa by taking away part of the plica; sometimes the tonsil must be enucleated.

Papilloma of the plica constitutes a large proportion of what is called papilloma of the tonsil,

Malignant Disease.—The writer relates one case in which the origin was in the fossa.

Foreign bodies sometimes lodge in the fossa, and fish bone and small splinter of meat bone may enter and lie there for an indefinite period. *Loeb.*

Tuberculosis of the Pharynx in Children.

288. PLICQUES, Lariboisiere. (*Ann. des Malad. du Lar. de l'Oreille, du Nez et du Phar.*, March, 1898.) Tuberculosis of the pharynx is rare. Siegert reports two cases. One with false diphtheritic membranes on the uvula, rear wall, and both sides of the pharynx, with numerous tubercle bacilli.

The second with one single ulcer in the pharynx. The epiglottis is often the seat of destruction. Demme (Bern) reported several cases; in one the mucous membrane of the cheek became involved. The disease is almost always fatal, especially on account of the usually very poor general condition. *Holinger.*

A Case of Chronic Abscess of the Tongue.

289. RICHARDSON, C. W. (*Jour. of the Amer. Med. Ass'n.*, February 28, 1898.) In a patient, a girl of 18 years, while being treated for nasal disease, an oval elevation in the center of the dorsum was observed. A diagnosis of dermoid cyst was made. Ten days later the patient developed severe earache, which became more and more intense, the temperature being 100 degrees. While pressing the growth on the tongue, it was noticed that the pain was aggravated. An incision was at once made and several drams of offensive pus was liberated, this being followed by complete recovery. *Scheppegrell.*

A Case of Unusual Defective Development in an Infant.

291. ROE, JNO. O. (*Buffalo Medical Journal*, January, 1898.) The patient, five weeks old, presented the following points worthy of attention: A full, wide double cleft through the upper lip, the jaw and the hard and soft palate, and the free exposure of the nasal chambers, the size and amount of projection of the intermaxillary bone, and its attachment to the end of the nose. In the operation, complete success attended the loosening and breaking down of the intermaxillary portion, which was followed by a firm union on both sides to the maxillæ. The floor of the anterior portion of the nostril and the gap in the lip were filled in, resulting in quite a normal appearance. *Scheppegrell.*

Pharyngitis Herpetica Associated with Menstruation.

292. SOMERS, LEWIS S. (*Phil. Med. Journal*, February 26, 1898.) The development of pharyngeal and buccal herpes during menstruation has been noted by various observers, who consider the menstrual function an etiologic factor in their development. The onset is usually accompanied by malaise, fever, and some gastric disturbance. The patient complains of sore throat in varying degrees, the salivary secretion is increased and the submaxillary glands moderately congested.

If an examination of the mouth and pharynx be made early in the course of the disease, groups of small vesicles surrounded by a red areola will be seen, these being situated often on the soft palate, but usually accompanied by a similar eruption on the mucous membrane of the cheeks, tongue, and frequently a group will be observed on the lips. These vesicles soon rupture and form small ulcers covered with a white membrane. If the eruption is left alone, it will pass through its natural course and disappear within a few days to two weeks, but relapses are common, and it may soon develop a chronic nature. The treatment is generally hygienic and constitutional; general tonics and local soothing applications to the mouth and pharynx are recommended. *Scheppegrell.*

The Oral Cavity in Its Relation to Tuberculosis.

293. TALBOT, E. S. (*Jour. of the Am. Med. Assn.*, May 28, 1898.) Tuberculosis acts directly upon the teeth

in reducing vitality, thus causing decay to take place more rapidly. Children who are born of tuberculous parents, almost invariably have an arrest in the development of the jaw, and certain teeth do not appear. In such children, in 45 per cent. the third molars, and in 14 per cent. lateral incisors are wanting. *Scheppegrell.*

Modern Operation for Cancer of the Lip.

294. WARREN, J. C. (*Boston Med. and Surg. Jour.*, February 24, 1898.) The prognosis in these cases is favorable. Not only should a V-shaped section including the cancer be removed, but also the glands on either of the sides of the jaw just inside the lower margin of the horizontal portion, and also occasionally a gland on the median line beneath the chin, as these are so frequently involved in the pathologic process. *Scheppegrell.*

A Recurrent Membranous Pharyngitis of Nineteen Years Duration.

295. HUNT, J. M. (*Journal of Laryngology, Rhinology and Otology*, February, 1898.) During eighteen years the patient, a middle aged unmarried lady, had not been free from the throat trouble but four months. At interval of ten to fourteen days she was taken with an acute sore throat, always limited to the left side, accompanied by a membranous exudation extending over the tonsil and side of the pharynx. In a week or two it disappeared and the whole process recommenced. Examination showed a thick, white membrane, extending over left tonsil, posterior fold of the palate, the lateral wall of the pharynx, left half of the posterior surface of the epiglottis, now continuous with that on the pharynx. Removal of a portion of the membrane which was surrounded by a highly inflamed mucous membrane resulted in a raw, bleeding surface remaining.

Opinion was given that the membrane was artificial by reason of the duration of the disease, despite treatment; cessation for four months while patient was confined to bed; situation on the left side and the membrane on the epiglottis not being continuous with that on the pharynx. Membrane contained streptococci and staphylococci, but no Loeffler bacilli. It was found that for twenty years the

patient had renewed at long intervals a prescription for liquor epispasticus, the application of which doubtless caused the recurring membranous pharyngitis. *Loeb.*

IV.—LARYNX.

Recent Observations on Intubation of the Larynx.

296. BARKER, W. S. (*Medical Review*, February 19, 1898.) The causes of returning laryngeal stenosis after intubation, are as follows:

Persistent diphtheritic pseudo-membrane; edema of laryngeal mucous membrane; destruction of cricoid cartilage, allowing collapse of thyroid cartilage on trachea; cicatricial contractions due to ulcerations; exuberant granulations; abductor paralysis.

The author suggests the following useful rules in practicing intubation:

1. Use only the most approved shape and size of tube.
2. Let the tactile sense of the hand making the introduction always be on the alert for indications as to the direction and amount of force to be used, or, in other words, let the fingers, not the fist, do the work, As in catheterization, avoiding force, using all gentleness.
3. Be sure of the position of the epiglottis, and pressing it anteriorly against the base of the tongue, do not fail to recognize the superior opening of the larynx just beyond and beneath the base of the epiglottis, but quite adjacent to it.
4. Keep the introducer (or extractor, as it may be,) well in the median line, for the tube is not constructed to enter at any other angle.
5. Do not feel it incumbent upon the operator to introduce the tube gracefully at the first pass, but rather be prepared to make a number of gentle and harmless passes, finally successful.
6. In very young patients there is repeated failure to introduce the tube, unless it is remembered that the faucial spaces being quite diminutive, and the ordinary introducer being really rather too large, it is necessary early in the operation to bring the tube close under the epiglottis by

raising the handle of the introducer before the tube has passed beyond and posteriorly to the tips of the aryteoid cartilages. For extubating with facility in infants, as well as in older children, two sizes of extractors are really needed.

7. Do not resort to tracheotomy too hastily when, at the first appearance, intubation seems not fully to meet the requirements of the case. It is likely that a special modified tube will answer, unless the obstruction is lower down in the trachea, when a low tracheotomy is the proper thing.
Scheppegrell.

Remarks Upon the Surgical Treatment of Malignant Disease of the Larynx.

297. DELAVAN, D. B. (*Jour. Am. Med. Ass'n*, March 12, 1898.) Dr. Butlin and many of the best surgeons of the day advocate the following propositions:

1. Every malignant growth of the larynx of intrinsic origin, which can be dealt with, should be treated by an operation in the absence of a decided indication to the contrary, and the operation should be performed with the least possible delay.

2. Every tumor of the larynx suspected to be malignant, of intrinsic origin, of limited extent and apparently within reach of free removal, justifies an exploratory thyrotomy in a suitable patient, in the absence of infiltration of the surrounding structures and the involvement of the lymphatic glands.

In cases in which the malignant disease is absolutely confined to the interior of the larynx, a thyrotomy may be performed according to the method described by Butlin and Semon, which should be more or less radical, according to the parts involved. Where the disease has made considerable progress, the radical operation of Dr. J. Solis-Cohen, of Philadelphia, may be practiced. It has the following advantages:

1. The danger to life from inspiration pneumonia is greatly lessened, owing to the shutting off of the mouth from the trachea.

2. Swallowing is accomplished with great ease and as freely as under ordinary circumstances.

3. In at least three cases thus operated upon the power

of phonation has been acquired, with a voice fully as satisfactory as that produced by an artificial appliance.

4. The comfort of the patient is greatly increased, and the disfigurement of the other operation and the wearing of an artificial larynx largely done away with.

Carcinomatous cases requiring laryngectomy are desperate at the best, both as to the immediate and ultimate results, and with our present limited knowledge of the subject no amount of caution, however great, will avail in preventing a high percentage of failures. With the best results obtainable, it should not be forgotten that in this disease surgery is, and probably always will be, a forlorn hope, and that while we have discovered some better method of dealing with it; the results of operations, even under the best conditions, will fall far short of a perfect means of cure.

Scheppegrell.

**Laryngeal Stenosis Due to Advanced Tubercular Disease,
Relieved by Intubation.**

298. DELAVAN, D. B. (*New York Polyclinic*, March 15, 1898.) The patient, a woman of 23 years, suffered from pulmonary and laryngeal tuberculosis. Recent suffocating attacks had developed, causing considerable distress. A laryngoscopic examination showed only a small chink, through which the patient was unable at times to draw sufficient air to support life. Oxygen gave considerable relief.

It was then suggested to insert an O'Dwyer's tube, cocaine being first applied and the tube inserted by means of means of a laryngeal mirror. This was worn for one week without discomfort. The condition of the larynx improved so much that there was no necessity for re-introduction of the tube, and the dyspnea did not return for six weeks. The tube was again inserted, and was followed as before by relief. While life could not be saved in this way, it caused relief of suffering.

Scheppegrell.

**The Guaiacol Treatment of Laryngeal Tuberculosis, Especially
by Submucous Injections.**

299. DONELAN, JAMES. (*Lancet*, Dec. 25, 1897.) In 7 cases in which guaiacol was administered by submucous injection, the results were uniformly satisfactory as regards the local action. The method, which is a slight modification of Chappell's, is as follows:

The larynx is cleansed with antiseptic sprays, and a mixture of guaiacol in paroline or castor oil, whereby the edema is reduced and superficial ulcers healed. After cocainization a submucous injection of usually 1 minim of pure guaiacol is made into the floor of an ulcer, or into the most prominent part of an infiltration. In no case was there any serious inconvenience following the operation, which was repeated at intervals of a week, and in two cases for part of the time every four days.

The good results of this treatment is most manifest in the speedy relief from dysphagia. The instrument used is made entirely of steel, and consists of a barrel mounted on a modified pistol handle, a long steel tube with a rectangular laryngeal curve, at the end of which is a thread coarse enough to carry the different nozzles. Each nozzle ends in a smoothly rounded shoulder, which prevents the needle penetrating too far. The needle projects a quarter of an inch from the shoulder, in order to insure the retention of the fluid. Instead of a piston rod and leathers, there is a steel plunger graduated in minims, and fitting the barrel with sufficient accuracy to insure the propulsion of fluids.

Loeb.

Etiology of Laryngismus Stridulus.

300. ERSKINE, A. M. (*British Med. Jour.*, Jan. 15, 1898.) The writer discovered that typical attacks of laryngismus stridulus, with carpopedal contractions, could be produced by rubbing the finger over the gums of a rickety child of 12 months. After lancing the gum three teeth appeared, and the attacks subsided.

Loeb.

Subglottic Abscess.—Death from Edema of the Glottis.

301. EWING, JAS. (*Med. Rec.*, Jan. 8, 1898.) The patient suffered from the ordinary symptoms of cold when he entered the hospital. Examination showed considerable swelling around the base of the glottis, but not much obstruction in spite of the presence of considerable dyspnea. Shortly after admittance this increased suddenly, and the breathing became markedly stridulous. Operation of any kind was refused. He suddenly became unconscious and a hurried tracheotomy was performed, but this did not save him.

The post mortem showed general edema of the glottis, and of the whole larynx. Below the posterior attachment of the right vocal cord a small opening was found in the mucous membrane, which communicated with a small abscess cavity containing pus. A bacteriological examination showed this to have been simple primary abscess, arising probably from the larynx. *Scheppegrell.*

A New Case of Hyaline, Typical Myxoma of the Larynx.

302. GAUDIER, Lille. (*Ann. des Mal. de Lar. d'Oreille du Nez et du Phar.*, April, 1898.) Man of 34, with complete hoarseness and shortness of breath, was found suffering from a transparent polypus, which covered the whole glottis. He was cured after the polypus had been removed with the intra-laryngeal forceps of Gottstein, under local anesthesia with $\frac{1}{5}$ grain of cocain.

Holinger.

General and Local Anesthesia in Laryngology and Rhinology.

303. GIBB, J. S. (*Jour. Am. Med. Ass'n*, March 5, 1898.) A comparative study of the advances made in local and general anesthesia in intra-nasal, naso-pharyngeal, pharyngeal and laryngeal operations.

Scheppegrell.

Report of the Progress Made in the Treatment of Laryngeal Tuberculosis.

304. GLEITSMANN, J. W. (*Med. Rec.*, Dec. 4, 1897.) An interesting resumé of the subject of the title. The treatment is divided into three parts, the medicinal, the local and the surgical. The author concludes that during the past few years not only satisfactory progress in the treatment of laryngeal tuberculosis has been made, but that in many directions diligent efforts are being made to overcome our deficiency and to improve our methods. When the necessity of an early interference shall have been more fully accepted, the task of the laryngologist will be simpler and the results more satisfactory.

Scheppegrell.

Two Cases of Laryngeal Spasm, Fatal in the First Attack, Occurring in the Same Family.

305. HUNTER, C. H. (*British Medical Journal*, April 2, 1898.) In the first instance the attack followed an out-

break of temper, and in the second the baby, a 7 months' sister of the first, the attack came on without warning. In both, without any previous illness, death followed in a few minutes. Autopsy showed in both cases marked signs of rickets, otherwise all organs were healthy. There was no foreign body or obstruction of any kind in the larynx or trachea.

Loeb.

Case of Parakinesis of the Vocal Cords, with Very Pronounced Aphonia.

306. JANKELEVITCH, S. (*Rev. Hebdomadaire d'Otologie, de Laryngologie et du Rhinologie*, Feb. 26, 1898.) A lady of 45 suffered from complete paralysis of the vocal cords. They were in median position and left but a narrow slit, which did not widen in deep respiration. In phonation the opening became a little larger. After practicing phonation and respiration under control of the larynx mirror, and some anti-tubercular treatment to help suggestion, the patient got well and proved very thankful.

Holinger.

Chronic Stenosis of the Larynx, with Five Illustrative Cases.

307. JONES, W. S. (*Journal of the American Medical Association*, March 12, 1898.) In chronic cases the most frequent initial symptom is dysphonia, which is sooner or later followed by other characteristic signs, such as dyspnea, dysphagia, etc. In the first case reported, a man of 35 years, a diagnosis of prolapse of the ventricle was made and successfully treated by the application of the electro-cautery.

In the second case, a man of 52 years, tubercular laryngitis and syphilis were excluded, and the cause was supposed to be due to localized chondritis, which necessitated tracheotomy.

In the third case, a man of 42 years, the stenosis was due to syphilis of the larynx. A tracheotomy gave relief, and the patient recovered under antisyphilitic treatment.

In the fourth case, a man of 53 years, a growth involved the right side of the larynx; a diagnosis of sarcoma being made. Laryngectomy was refused.

The fifth case, a man of 30 years, was due to a scar resulting from attempted suicide.

(The first case reported was probably one of hyperplasia and not of prolapse of the ventricle. From a microscopic

examination of two cases, and an analytical study of all reported cases, B. Fränkel ("Der sogenannte 'Prolapsus' des Morgagni'schen Ventrikels," Fränkel, *Archiv. f. Laryng. und Rhin.*, Band I, Heft 3,) maintains that these are not really due to a prolapse of the ventricle, but to a hyperplasia of the lateral and frequently the superior wall of the ventricle. This subject is of importance, as frequently much time is lost in useless efforts to replace the prolapse, instead of using a simple operation for the removal of the growth.—Scheppegrell.)

Scheppegrell.

Incurable, Benignant Paralysis of the Recurrent Nerve After Measles.

308. LERMOYEZ. (*Ann. des Mal. de l'Oreille du Lar. du Nez et du Phar.*, April, 1898.) Different forms of paralysis of the recurrent nerve and their prognosis are first spoken of. While, as a rule, they are of a rather serious nature, the author tells of a lady of 30 who, since her third year suffered from paralysis of the left recurrent nerve so that the left vocal cord stays in cadaveric position. Phonation is performed by the right cord passing the middle line. The patient makes the exact statement that this disease made its first appearance after measles, improved, but recurred two years later after a heavy attack of whooping cough. She had a tubercular history and heredity. The author found only a few similar cases in literature.

Holinger.

Report of a Case of Malignant Growth in the Larynx.

309. MYLES, ROBT. C. (*New York Polyclinic*, March 15, 1898.) The patient, a man of 45 years, suffered from loss of voice, sore throat, cough, difficulty of breathing, weakness and night sweats. A large growth was found in the larynx attached to the left vocal cord, and the adjacent and inferior parts, extending across the anterior commissure.

A histologic examination showed the tumor to be sarcoma. A laryngectomy was then successfully made by means of the Solis-Cohen operation. When the wound closed it was found that the patient had a fair amount of speech. Unlike the well known case of Solis-Cohen, in which the patient has a pocket in the upper esophageal

region and emits regular puffs of air, as is done in ordinary laryngeal speaking; the voice in this case seemed to be produced merely by the air being forced by pressure of the muscles over the rough edges of the glosso-pharyngeal region, in this way producing enough vibration for whispered speech to be made by the tongue, lips, teeth and palate.

Scheppegrell.

**Multiple Papillomata of the Larynx in Young Children
Treated by Tracheotomy Only.**

310. RAILTON, T. C. (*British Medical Journal*, February 10, 1898.) The writer relates two cases in which cure resulted after wearing the tube forty-five months and twenty-six months respectively.

Loeb.

Alterations in the Shape of the Trachea.

311. SIMMONDS. (*Cbl. f. Chirg.*, March 22, 1898; *Jour. of the Am. Med. Ass'n.*, April 30, 1898.) The author, director at the large hospital at Hamburg, has made a study of casts of tracheas. He found numerous constrictions, dilatations, and angularities; scoliosis was noted in one-fourth of all the cases. Constrictions produced by the pressure of aneurisms, tumors and latent goitres were frequent, also a groove, which he attributes to the pressure of the arteria anonyma. The walls were frequently found ossified and flattened in elderly persons, for which he suggests the descriptive name of "senile sabersheath trachea." Universal dilatation was noticed in only one case, probably congenital, but partial ectasia was common, almost invariably in the middle section of the rear wall, in elderly persons, accompanied by atrophy of the wall.

Scheppegrell.

Spasmodic Closure of the Glottis in the Adult.

312. STILLSON, HAMILTON. (*Journal of the Amer. Med. Ass'n.*, February 26, 1898.) Spasmodic occlusion of the larynx in an adult is usually of the nature of a reflex. Spasm of the abductor muscles is usually found in such nervous diseases as chorea and hysteria. Much discord exists as to the nature of this form of pharyngeal spasm, but in the opinion of the writer, the affection is of the nature of *petit mal*. In the case reported, the attack was at first characterized by loss of consciousness, but in the

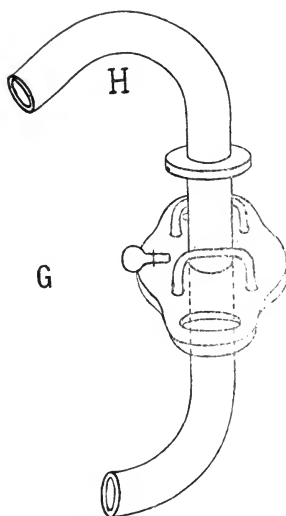
subsequent attacks, which had continued for five years, the patient coughed and strangled, but did not lose consciousness.

Scheppegrell.

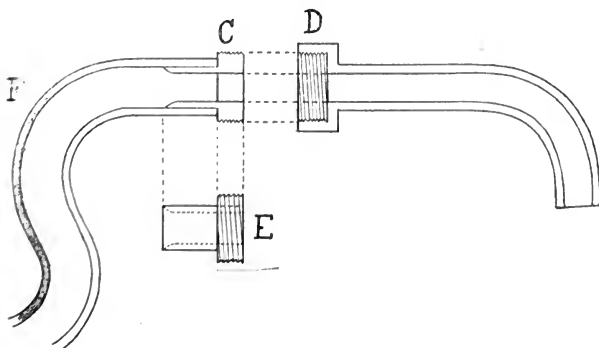
An Extended Tracheotomy Tube.

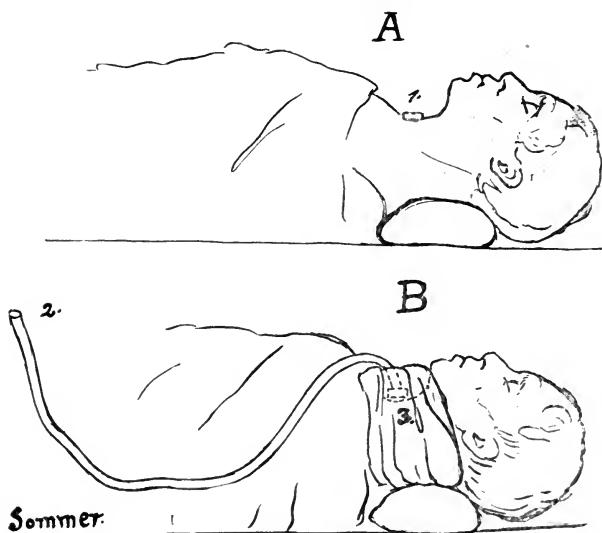
313. SOMMER, H. O. (*Medical Times*, April, 1898.) In view of the possibility of vomited particles entering the ordinary tracheotomy tube, and to favor ordinary aseptic precaution, the author suggests the addition of a flexible rubber tube of sufficient length. This is attached after the patient has coughed up the usual secretions immediately consequent or subsequent to the introduction of the tube.

Scheppegrell.



Sommer.





Tuberculosis of the Throat.

314. THOMAS, H. M. (*Jour. of the Amer. Med. Assn.*, May 28, 1898.) Where the mucous membrane is not broken, lactic acid proves negative. Twenty per cent. solutions of menthol in olive oil injected into the larynx, is efficacious. Much temporary relief can be afforded by the inhalation of vaporized antiseptic oils, which being carried directly to the abraded surfaces are well deposited over them, and through absorption and mechanical protection greatly allay many of the distressing symptoms attending laryngeal tuberculosis. *Scheppegrell.*

Wound of the Thoracic Part of the Trachea After a Wound of the Neck with Pointed Cutting Instrument.

315. VANOERTS. (*Ann. des mal. de Lar. d'Oreille du Nez. et du Phar.*, March, 1898.) A man of 41 year tried to commit suicide. The skin was cut above the sternum. The trachea was almost completely separated three cm. below the upper margin of the sternum. The patient recovered sufficient to tell that he had stuck the knife deep down behind the sternum. No post-mortem was allowed. *Holinger.*

Notes on a Case of Carcinomatous Growth in the Larynx.

316. HAMILTON, BRUCE. (*Journal of Laryngology, Rhinology and Otology.*) For twenty years the patient had

been afflicted with hoarseness, sometimes amounting to complete loss of voice. Other symptoms were cough, which was worse in winter, expectoration of a few mucous pellets, hot and dry throat at times. There was no history of syphilis or indulgence in stimulants. Laryngoscope gave no evidence of a new growth, but the lining membrane throughout exhibited an extreme degree of hyperemia, and the vocal bands which seemed shrunken, and differed but slightly in color from the surrounding parts, were not impaired in motility.

Six months later inspiratory stridor was plainly audible and speech was reduced to the merest whisper, though there was little pain or difficulty in swallowing. A hard, smooth, rounded, firmly fixed mass was felt close to the left side of the thyroid cartilage, and about an inch to the outer side of this a second tumor as large as a horse-chestnut. The skin over the growths was freely movable, and some swollen glands were found on the other side. The anterior half of the glottis was occupied by a growth. Definition of the vocal bands was impossible; the left, greatly enlarged, was the seat of an ulceration along its inner margin and the right was swollen and congested. There was slight movement on the right side, but none on the left. Examination of a fragment showed that the growth was of an epitheliomatous nature. Laryngectomy was performed and afforded relief for a short time, but the patient succumbed from septic pneumonia. The interesting features of this case are the long history of hoarseness and chronic laryngitis, and the first examination revealing no signs of cancer, which was so manifest and extensive six months later.

Loeb.

The Diagnostic Significance of Laryngeal Abductor Paralysis.

317. SEMON, FELIX. (*British Med. Jour.*, January 1, 1898.) Notwithstanding the statements of Exner and his pupils, the recurrent laryngeal is accepted as the motor nerve *par excellence* of the larynx, the crico-thyroid alone being supplied by the superior laryngeal. The origin of the recurrent is still not definitely settled, though Russell has succeeded in splitting it throughout its peripheral length into three different bundles of fibres, one (the inner group) supplying the adductors, one the abductors,

and one by which no motor effect can be produced in the larynx.

During both inspiration and expiration, in fully four-fifths of all cases, the glottis forms an isosoles triangle, the sides of which move very little or not at all. This triangle is perceptibly larger than that found after death (cadaveric position) and for the reason that the abductor muscles are endowed with a special reflex tonus which keeps the glottis open during life to such a degree that ordinary respiration is rendered possible. This is produced by certain centripetal fibres, contained mainly, but not exclusively, in the trunk of the pneumogastric nerves which are stimulated by the interchange of gases in the lungs during the process of respiration and act rhythmically upon certain centers of the medulla where they are changed into tonic impulses which travel downward along the fibres, ultimately forming the recurrent. If a motor nerve is cut, complete paralysis of all its muscles results, unless they have other nerve supply. Until 1876, it was believed that if the lesion is slow and progressive, complete paralysis will be preceded by paresis equally developed in all the muscles supplied, or the paresis will be more pronounced in one than another. If the recurrent be cut, complete paralysis of all its muscles will follow, and the corresponding vocal band will assume the cadaveric position. In regard to the unequally acting cause, the writer's experience has been that in every case of this sort the abductor paralysis (never the adductor) was first observed whether it was unilateral or bilateral. Search of the literature on the subject did not reveal a single well authenticated case in controversion of his experience. Unless paralysis was complete from the beginning of the observation, the abductors were always first involved. Further, in every case in which a searching investigation was made, the posterior crico-arytenoid muscle was either the only one affected, or the atrophic and degenerative changes were much more marked in it than in any of the adductor muscles supplied by the same nerve. However, while the abductor fibres are first to succumb, the adductors are first to recover, corroborating the greater vulnerability of the former. The following facts tend to confirm the writer's position:

In all species of animals, if the laryngeal museles are stimulated with a weak faradic current, it will be found that the posterior crico-thyroid muscles lose their electric excitability before any of the adductors; sometimes there is as much as an hour's difference. Dr. Risien Russell found that the abductor bundle of fibres lost its electric excitability long before that supplying the adductors. Freezing the laryngeal nerve was shown by B. Fraenkel and Gad to cause loss of abduction. Grabower has found that the nerve endings in the crico-arytenoid and internal thyreo-arytenoid are of a much more complicated character than those seen in the crico-arytenoid posterior. Dr. Franklin Hooper found that stimulation of the cut or uncut recurrent laryngeal nerve with an electric current which throughout was kept equally strong, resulted in abduction of the corresponding vocal cord when the narcosis was slight, while abduction resulted when the anesthetic was pushed to deep narcosis. The conclusion rationally, is, that there must be a specific peripheral and differential action through the agency of the circulation upon either the nerve fibres, the nerve endings, or the muscular substance itself; in other words, there must be a bio-chemical difference between the two antagonistic apparatus which will some day explain the greater vulnerability of the abductors.

In aneurisms of the aorta, causing pressure upon the left recurrent, according to the law of greater vulnerability, first of all the abductor tonus will be gradually lost. This does not cause any interference of breathing inasmuch as the other abductor is able to carry on respiration without subjective or objective dyspnea. The voice is not necessarily affected, since the paralyzed cord is in the position for phonation.

The clinical importance arises from the length and course of the recurrents, the occurrence of laryngeal paralysis alone as the only positive sign of certain pathological processes and the lack of symptoms denoting its presence.

The motor laryngeal fibres are exposed to the following bulbar and bulbospinal affections: hemorrhage and softening, syphilitic processes, tumors, diphtheria, progressive bulbar paralysis, the peculiar form of unilateral par-

alysis described by Hughlings Jackson and Morrell Mac-kenzie, amyotrophic lateral sclerosis, disseminated cerebro-spinal sclerosis, syringomyelia and tabes dorsalis. They are exposed to the following peripheral affections: Acute rheumatic influences, catarrhal neuritis, toxic influences, tumors in the posterior cavity of the skull or in the foramen lacerum or foramen jugulare, pachymeningitis, traumatism, tumors of the neck, aneurisms, mediastinal tumors, pericarditis, pleurisy, tuberculosis and pleuritic thickening of the apex of the right lung, chronic pulmonary affections, infectious fevers and esophageal carcinoma. It behooves, therefore, the observer who discovers fixation of one or both the vocal cords in the phonatory position to be very guarded in the diagnosis of the disease to which such fixation owes its origin. *Loeb.*

V.—DIPHTHERIA.

Pathology and Diagnosis of Diphtheria.

318. AITKEN, C. W. (*Journal of the Amer. Med Assn.*, May 28, 1898.) Every child's throat should be examined when medical attention is required, as children so infrequently complain of their throats. The nose should be included in this examination, no matter how intractable the child may be. *Scheppegrell.*

An Experience of Ninety-six Cases of Diphtheria in Private Practice.

319. AYLWARD, W. C. (*British Medical Journal*, January 15, 1898.) All of these cases which, on the whole, were mild, resulted almost entirely from personal contact with diphtheritic patients. In 97 per cent. the membrane appeared at one time or another upon the tonsils, in 51 per cent. it did not spread beyond them, while in the remainder, it spread so as to attack the posterior part of the pharynx in 26 per cent., while in 23 per cent., the uvula in 23 per cent., soft palate in 15.6 per cent., nares 14.6 per cent., and larynx 9.4 per cent.

Rash appeared in 11.1 per cent. of the infected cases, though it appeared in 25 per cent. of those injected with fluid serum, while in only 8.33 per cent. of the 60 cases in

which the dried serum was employed was this symptom present. Paralysis followed in 8.3 per cent. of the 24 non-serum cases, and in 18 per cent. of the 72 serum cases, in all instances the palate being affected.

The writer objects to the immunizing injections upon the grounds (1), that in every one of these cases in which serum was used in a full dose on the first appearance of false membrane, the arrest of the disease was prompt and efficient; (2), considerable pain is often caused by the injections; (3), although the risk is probably very small, it cannot be said to be absolutely nil; (4), it is an open question whether it is prophylactic at all. *Loeb.*

An Epidemic of Diphtheria, Demonstrating in a Marked Degree Its Contagious Nature and Value of Immunization.

320. BERRY, JANE L. (*Medical Record*, February 12, 1898.) A detailed report of an epidemic of diphtheria in St. Johnsbury, Vt. The history of the cases affords a striking proof of the infectious nature of the disease and the necessity for quarantining in even the mildest types, as several of the most severe cases were contracted from those of the mildest form.

The less severe cases in the onset afforded no reliable indication of the final result, as many of these were followed by the development of serious and fatal symptoms later. The effect of the antitoxin treatment was pronounced and gave a low mortality. The value of protective inoculation is also illustrated. *Scheppegegrell*

Clinical Significance of the Different Forms of the Klebs-Loeffler Bacillus.

321. CLASS, W. J. (*Jour. of the Amer. Med. Ass'n.*, April 30, 1898.) As a result of a study of 27 cases, of which careful bacteriologic examinations were made, the author presents the following conclusions:

1. That the short Klebs-Loeffler bacillus apparently produces a toxin of greater virulency than the longer forms, although the local manifestations may not be so extensive.

2. That the long Klebs-Loeffler bacillus and the streptococci, when found alone, gives rise to a mild type of the disease.

3. That the streptococcus is found associated with the

Klebs-Loeffler bacillus in most of the severe cases. Its special significance is not so clear, but it is possible, by causing a more intense inflammatory reaction, it opens avenues by which the toxins of the Klebs-Loeffler bacillus may find more ready entrance into the circulation, plus its own toxin.

4. That the apparent beneficial action of the antitoxin of the Klebs-Loeffler bacillus is not present, may be due to the fact that though the local action of the different microbes varies to a considerable extent, the action of their toxins, as is shown by the similarity of constitutional symptoms produced by them, present many kindred features. The thought, however, arises that the antitoxin of one infection may have an inhibitory effect on the toxin of another, as is shown by the fact that whooping cough and some other infectious diseases have been shown to occur less frequently in vaccinated persons and some cases have, apparently, been cured by vaccination. *Scheppegrell.*

The Treatment of Diphtheria.

322. DABNEY, S. G. (*Journal of the Amer. Med. Assn.*, May 28, 1398.) Antitoxin as a prophylaxis has shown that in more than 15,000 cases, only 79 had the disease within three days after exposure, and to these an insufficient dose had been given. The period of immunity is three weeks. A concentrated dose is recommended in the treated, 600 units in the mild cases for children of two years, and in severe cases 1000 units. Peroxide of hydrogen is not recommended. In laryngeal cases the use of antitoxin is of great efficiency when assisted by intubation. Practice in intubation of the larynx on dogs is recommended to those unfamiliar with the technique. *Scheppegrell.*

An Unusual Experience in Diphtheritic Infection.

323. FERGUSON, E. D. (*Jour. of the Amer. Med. Ass'n.*, April 23, 1898.) The cases reported are as follows:

The first, a boy aged 14 years, became ill March 4, with the ordinary signs and symptoms of lobar pneumonia. The local physical signs corresponded to the ordinary course of the pulmonic disorder, and by March 11th, the lung had so far cleared as to show that some element other than ordinary pneumonia existed, for, instead of an improvement in the general condition, the symptoms be-

came progressively worse, and the patient died March 13th. No complaint had been made of discomfort in the throat, and no evidence of trouble was present here until it was too late to examine. This patient died two days before the author's visit.

The second case, a boy of 11 years, became ill March 9th, presenting, in the same manner as his brother, the usual signs and symptoms of lobular pneumonia. A favorable course was pursued until March 14th, when a membranous exudate was discovered in the throat, death occurring March 16th.

The third case, the father of these boys, was taken ill March 11th. He also presented all the physical signs and symptoms of lobular pneumonia, but March 14th the throat showed an exudate, death resulting March 16th.

The fourth case, a brother of the father, became ill March 12th, but refused to go to bed until the following day. In his case, also, all the signs of lobular pneumonia were present, but March 14th the throat trouble had developed, death supervening on the 16th.

No post-mortem was held, but a bacteriologic examination of the pharyngeal exudate showed the presence of the Klebs-Loeffler bacillus.

While the author does not affirm that the pneumonic trouble was distinct from the pharyngeal disease, still he believes that the clinical history and the distinct limitation of the lung element to a single lower lobe in each case would justify the inference.

Scheppegrell.

Progress in the Immunization Treatment for Diphtheria at Berlin Hospitals.

324. HEUBNER. (*Jour. of the Amer. Med. Ass'n.*, May 7, 1898.) When a case of diphtheria occurs in the surgical wards of the Kaiser and Kaiserin Friederich Hospital, of which Prof. Baginsky is the director, he immediately has all the other children immunized. In private families, when a case of diphtheria occurs, he does not consider immunization so necessary. Prompt segregation often prevents the disease from spreading to other members of the household, and as the doctor in such cases is in daily attendance, the serum treatment may be begun as soon as the first suspicious symptom is noticed in another child.

Antitoxin, when given thus early in the disease, he considers an unfailing remedy. In patients injected during the first forty-eight hours of the disease, there is absolutely no mortality.

As Prof. Heubner has for some time made it a practice to immunize all the children in his wards at the Charité every three weeks, it may be seen what a prominent place immunization has taken here during the last year. For a while Prof. Heubner had to give up his immunizing injections because the hospital directorate thought it savored too much of experimental investigation on the children, and might arouse popular indignation. They were resumed after an interval of only two months, however, as it had become clear that they were wonderfully efficient in preventing diphtheria in the wards of the hospital. Absolutely no inconveniences have resulted from this practice.

Scheppegrell.

Municipal Control of Diphtheria.

325. JAKES, W. K. (*Jour. of the Amer. Med. Ass'n.*, March 12, 1898.) Municipal control of diphtheria includes the enforcement of those hygienic laws which will increase physiological resistance and thus remove predisposition to the disease. It must protect children from contagion by competent medical inspection of schools and public places of work. It should furnish the physician the means of early bacteriologic diagnosis, and obtain and furnish the best possible quality of antitoxin.

Scheppegrell.

A Case of Pseudo-Membranous (Diphtheroid) Stomatitis, Caused by the Streptococcus Pyogenes.

326. JURIST, L. (*Journal American Medical Ass'n*, March 19, 1898.) In spite of their exposed position and liability to injury, the mouth and tongue are but rarely affected in diphtheria and diphtheroid disease. In the case reported, a woman of 20 years, suffered from severe dyspnea, the tongue being enormously swollen and protruding from the mouth. Some days previously the patient had had an attack of vomiting and diarrhea, which yielded to treatment. The tongue began to swell and the present condition supervened. The floor of the mouth and the under surface of the tongue were covered with a

thick grayish membrane, the tongue was swollen and rigid but free of false membrane. The pharynx could not be examined. Late in the disease, the submaxillary lymphatic glands became enlarged and a well marked edema involved the entire face and neck.

Two weeks later, the patient had gradually improved and the pharynx could be examined. Two oval distinctly outlined patches were observed on the hard palate; there was no membrane on the soft palate, the uvula, the tonsils, or the frontal arch. The case gradually recovered under local and supporting treatment. A year later, there was a distinct scar which prevented protrusion of the tongue. A bacteriologic examination failed to reveal the presence of micro-organisms of a diphtheritic nature. The author therefore, calls it "diphtheroid." *Scheppegrell.*

The Etiology and Therapy of Diphtheria—A Plea for the Vito-Chemic Cause of Disease Versus the Microbic Theory and Treatment by Animal Serum.

327. LEE, ELMER. (*Medical Times*, April, 1898.) Diphtheria is a disease produced by the accumulation of auto-generated chemic toxins within the entire organism, produced by pathologic vital action through the introduction of foreign material from without, including excess of quantity and vitiated quality of food, together with consequent improper nutrition, mal-assimilation and imperfect elimination. A "therapeutic fast" is, therefore, advocated, lasting from one to five days, and the use of water externally, internally and locally. The plea is for hydro-therapy and its auxiliaries, for a scientific profession of medicine, with drugs as non-essentials, though admitted to be sometimes seemingly useful in certain emergencies, yet incapable of forming a successful basis for scientific therapeutics.

(Hydro-therapy is a most useful treatment in many conditions, but it has its limitations. In view of the undoubted benefits of many forms of local and constitutional medicinal treatment, and especially of serum therapy, it would require considerable courage on the part of the physician, in a severe case of diphtheria, to limit himself to hydro-therapy.—Scheppegrell.) *Scheppegrell.*

Post-Diphtheritic Palsy and Antitoxine.

328. MCFARLAND, J. (*Practical Therapeutics*, February, 1898.) Antitoxin in the treatment of diphtheria should be administered in doses sufficiently large to obviate all possibility of any unneutralized toxin remaining in the child's body to cause further damage. As the dose cannot always be gauged, it would be better to err in giving too much rather than too little. Antitoxin should be injected as soon as possible after the onset of the disease.

Scheppegrell.

Immunity Period from Diphtheritic Antitoxin.

329. MORRILL. (*Boston Med. and Surg. Jour.*, March 3, 1898.) The author reports the results of observations in diphtheria immunization, as carried out in the Children's Hospital of Boston. Of 1808 immunized at least once every 28 days, the amount of serum varying from 150 to 500 units, 7 had diphtheria; 3 from insufficient doses, 2 within 24 hours of the injection, and 2 in whom the time of infection came 23 and 22 days, respectively, after giving an amount which had previously been effective when given every three weeks. Of 829 who were not given antitoxin, or in whom more than 28 days had elapsed after the injections, 9 had diphtheria, besides 3 immunized adults.

The author concludes (1) that immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred for at least 10 days by the injection of a small dose (100 to 250 units) of serum, provided it is given 24 hours previous to actual infection; (2) that a larger dose (250 units for a child of 2 years, up to 500 units for one of 8 or over,) will confer safety for three weeks, or, to be a little more conservative, 20 days, under similar conditions; (3) that no harm will result from the treatment in a vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum is up to the present standard of purity.

Scheppegrell.

Diphtheria form Laboratory Infection.

330. BIESMAN. (*Philadelphia Med. Jour.*, March 5, 1888.) A case of laboratory infection is reported, which is of value in determining the period of incubation of this

disease, about which there still exists much obscurity and which in this case was less than 48 hours, probably between 43 and 48 hours. In this case of infection the bacteria were of the highest degree of virulence possible, and were deposited in large numbers directly on the surface which became the seat of the disease.

Scheppegrell.

Acute Degenerations of the Nervous System in Diphtheria.

331. THOMAS, J. J. (*Boston Med. and Surg. Jour.*, Jan. 27, 1898.) The author sums up the changes of the nervous system produced by diphtheria as follows:

1. Marked parenchymatous degeneration of the peripheral nerves, sometimes accompanied by an interstitial process, and hyperemia and hemorrhages.

2. Acute diffuse parenchymatous degeneration of the nerve fibers of the cord and brain.

3. No changes, or but slight ones, in the nerve cells.

4. Acute parenchymatous and interstitial changes in the muscles, especially the heart muscles.

5. Occasional hyperemia, infiltration or hemorrhage in the brain or cord, in rare cases severe enough to produce permanent lesions, such as the cases of multiple sclerosis and of hemiplegia, which have been observed. Finally, the probability of the cases of sudden death from heart failure in diphtheria during the disease, or convalescence, are due to the effects of the toxic substances produced in the disease upon the nerve structures of the heart.

Scheppegrell.

Diphtheria and Diphtheria.

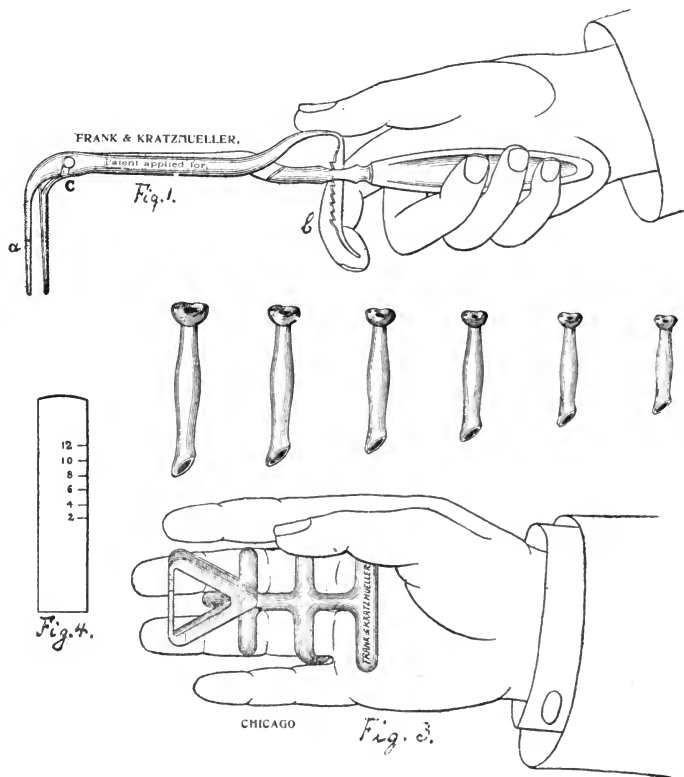
332. TWITCHELL, G. B. (*Cincinnati Lancet-Clinic*, Feb. 26, 1898.) An early administration of antitoxin in pharyngeal cases will avoid paralysis and save lives. After antitoxin has been injected, other treatment should not be abandoned; mercury, whisky, strychnin and other stimulants are useful. Local applications may be injurious.

(Unfortunately, the early administration antitoxin in pharyngeal cases does not always prevent paralysis, as this sometimes develops even in cases in which the antitoxin has been injected within 24 hours of the development of the disease —Scheppegrell.)

Scheppegrell.

Intubation with Improved Instruments.

333. THORNER, MAX. (*Cincinnati Lancet-Clinic*, Feb. 19, 1898.) The instrument which serves as introducer and extractor has at its distal extremity two serrated beaks about 2 inches long. They are opened by pressure with the thumb on the upper portion of the lever, and are automatically held open by a ratched arrangement, while pressure with the index finger upon the lower of this ratched



bar relieves it and closes the beaks. By firm pressure the beaks hold the tube immovable, so that it cannot slip off nor turn during an attempt at introduction or extraction. A convenient mouth gag is also described. These instruments are made by Messrs. Frank & Kratzmueller, Chicago. *Scheppegrell.*

Tracheotomy in Diphtheria in Conjunction with Antitoxin.

334. VON QUAST, E. (*Journal American Medical Ass'n*, April 9, 1898.) The advantage of antitoxin in cases in

which tracheotomy is required, with a report of cases illustrating the benefit of this procedure,

Scheppegrell.

Diphtheria.

335. WALSH, J. E. (*Virginia Med. Semi-Monthly*, April 8, 1898.) An interesting resumé of the advantage of antitoxin treatment in diphtheria. The result of the treatment of this disease, with and without antitoxin, in Washington, D. C., during the past two and a half years is as follows:

1895-96.

Cases treated with antitoxin, - -	174
Cases treated with other methods,	152
Died after administrat'n of antitoxin,	23
Died after other methods of treatment,	53
Mortality with antitoxin, - - -	13.2 per cent.
Mortality without antitoxin, - -	34.9 per cent.

The mortality of those under 12 years of age in the antitoxin class was 16.3 per cent., and in the no-antitoxin class 41.5 per cent.

1896-97.

Cases treated with antitoxin,	288;	deaths,	21;	mortality,	7.3 per cent
" " without "	335;	"	89;	"	26.6 "
Cases under 12 years of age, 1st class,	235;	"		8.9	"
" " " " " 2d	256;	"		33.2	"

Scheppegrell.

A Preliminary Communication on Bacillus Diphtheria and Its Variants in a School in which Diphtheria was Endemic.

336. WESTBROOK, F. F., WILSON, L. B., MCDANIELS, O., ADAIR, J. H. (*British Med. Jour.*, April 16, 1898.) Fourteen months ago bacteriological examinations were begun to determine the reason for the frequent occurrence of diphtheria in a State institution in which from 230 to 275 children are housed and educated.

A thorough examination of the institution as to location, soil, etc., did not reveal anything which would explain the presence of the disease, and an examination of the water from time to time always gave a negative result. The school is conducted on the so-called "cottage" plan, which consists in the grouping of children according to

age and sex into cottages. The children from the different cottages came in contact at meals, in the school room and on the play ground. Notwithstanding all the precautions, diphtheria has been endemic in the institution since its first year of operation (1887), at times latent, but re-appearing from time to time. A particularly severe outburst in the summer of 1896 led to a consideration as to how far the trouble could be attributed to a throat-to-throat transmission through the medium of children themselves immature, all other examinations having failed to reveal anything. The methods employed for checking the disease were as follows:

1. Each child, upon his arrival, receives a complete change of clothing, a warm bath, and culture is taken from his throat.

2. He is retained in the ward for two weeks, when another is made, and if this is pronounced negative, provided the first one was also negative, he is assigned to a cottage, no one being sent from the quarantine building until he shows two successive negative cultures.

3. Upon occurrence of symptoms of sore throat among the inmates they are immediately sent to the hospital, and cases were found where the patients gave absolutely no history of any illness, but typical cultures of *B diphtheria* were found during their entire sojourn in the school, extending over a period of from 1 to 2 years.

In the bacteriological examination a bacillus was noted, which was (with one exception in 2,400 examinations,) limited strictly to this institution, and differed from the "typical form in the following respects: 1. No polar granules; 2, less variation in size; 3, somewhat thicker in the middle, with rounded ends rarely club-shaped. and frequently arranged in pairs, whose proximal extremities are always thicker than the distal; 4, grows more rapidly in glycerin serum and is of a much darker color when old. This "atypical" form was found alone, mixed and alternating with typical forms of diphtheria, both in clinical cases in healthy individuals.

Cultures were made from 478 persons in the school. Of these 301 presented no symptoms, and gave a negative bacteriological finding; 5 had clinical symptoms, which

resembled those of diphtheria, but not even suspicious-looking bacilli were found. The remaining 172 showed either typical or atypical bacilli. Of these, 13 cases showed no clinical symptoms, but the typical form of B diphtheria; 6 gave no symptoms but the atypical type of bacilli; 88 showed clinical symptoms, with atypical bacilli; 4 showed the presence of the atypical form from the beginning, with the atypical development later. Six cases were found in which the atypical, typical and associating forms were present before the clinical symptoms arose; 4 showed no symptoms, but one form of bacilli was followed by the other. Eighteen cases, which at no time while the examinations were in progress showed symptoms of diphtheria, had frequently or continuously present an irregular succession or mixture of the two forms.

The results of the clinical, bacteriological and experimental observations would lead to the following conclusions:

1. This atypical bacillus may remain in the human throat for months without producing any symptoms, or, on the other hand, may produce clinical symptoms, not to be differentiated from diphtheria, but usually of a milder type than that produced by the typical form.

2. It is a variety of B diphtheria.

3. It must be distinguished from the so-called "short forms" of B diphtheria, and by the constant absence of polar granules and the intensity and evenness of staining with methylene blue and from any non-pathogenic pseudo-diphtheria bacillus heretofore described.

As general conclusions, drawn from these examinations, we may say:

1. That the throats of people brought in contact with diphtheria patients be examined, and if B diphtheria be found, that they be quarantined until free from the bacilli.

2. That freedom of the throats of diphtheria patients of those brought in contact with them from B diphtheria, or its variants, be determined by at least two successive negative examinations.

3. That diphtheria patients, particularly while convalescent, be quarantined by placing, when possible, one patient in one room.

Loeb.

VI.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

**A Salivary Fistula of Thirty Years' Standing.—Operation.
Cure.**

337. ANTHONY, R. S. (*British Med. Jour.*, Jan. 15, 1898.) For the relief of this fistula, which was about the size of a small pin head, situated in the inferior portion of the superior carotid triangle of the left side of the neck, the following operation was performed:

Under cocain anesthesia a curved needle, threaded with silk worm gut, was passed well under the fistula, in which a probe had been inserted, and brought out on the other side. Removing the probe, the fistula was ligated about 4 c. c. from the opening. Reinserting the probe to the point of ligation a cut was made down to the probe, laying the fistula open. After thorough curetting the cut surfaces were united with three or four sutures. Result: recovery.

Loeb.

**Etiology of Chronic Broncho-Nasal and Gastro-Intestinal
Catarrh.**

338. ARMSTRONG, HERMANN L. (*New York Med. Jour.*, Jan. 15, 1898.) The author has been called on so often to treat the stomach, and other organs of digestion, that for a time he was undecided as to whether catarrh of the upper air passages caused the stomach trouble, or whether the reverse was the case. He decided, however, in favor of the latter, and refers to the therapeutic agents useful for the various forms of indigestion.

Scheppegrell.

Sarcoma and Erysipelar Toxines.

339. BALDWIN, J. F. (*Cincinnati Lancet-Clinic*, Jan. 1, 1898.) The author reports three cases, one of sarcoma of the upper jaw, one of round-cell sarcom of the nasopharynx, and one of sarcoma of the tonsil. None of these cases appeared to have been benefited by the injection of erysipelas toxines, and all ended fatally. *Scheppegrell.*

**Tonsil and Adenoid Operations Under Anesthesia by Nitrous
Oxide, and Nitrous Oxide and Oxygen.**

340. CASSELBERRY, W. E. (*Jour. of the Am. Med. Assn.*, March 5, 1898.) The advantages claimed for this mixture over chloroform and ether, are: The absence of danger;

no preparation whatever is necessary; the upright position usually desired may be safely assumed; hemorrhage appears to be in no way affected by it; the time of the whole procedure is lessened from an hour and a half to as many minutes; the after-effects of vomiting and retching are entirely obviated, and patients may be safely removed to their homes within fifteen minutes.

The disadvantages are as follows: A somewhat cumbersome apparatus is required; a greater number of assistants is desirable; the haste with which it is necessary to operate.

Scheppegrell.

The Diagnosis of Cough.

341. COLLIER, M. (*New York Medical Journal*, January 22, 1898.) A thorough examination in cases of cough and discomfort referable to the upper respiratory tract is important. Percussing the chest and listening to the abnormal sounds is not sufficient. The larynx, nasal chambers and ears should be examined, in order to insure correct diagnosis and efficient treatment. Bronchitis is not a disease of itself, but in the majority of cases a symptom of unphysiologic respiration.

Scheppegrell.

The Antitoxin Treatment of Tuberculosis.

342. DENISON, C. (*Jour. of the Amer. Med. Assn.*, February 5, 1893.) A report of cases showing the useful influence of the antiphthisic serum made according to the formula of Dr. Fisch.

Scheppegrell.

Hiccough with Pharyngeal and Diaphragmatic Spasm Characterizing a Case of Hysteria.

343. DILLER, T. (*Phil. Med. Jour.*, April 16, 1898.) The patient, a girl of 17 years, was subject to frequent attacks of vomiting. Five months before applying and immediately following an attack of vomiting, she was seized with peculiar spasmodic attacks of hiccoughs, from which she suffered until the present time. These spasms occurred about once every minute and involved the diaphragm, soft palate, pharyngeal muscles, and those which protrude the tongue. The patient was finally cured by suggestion. An operation, which was promised would cure her, consisted of an incision through the skin of the abdomen.

Scheppegrell.

**"Grains of Experience" Cleaned from Eye and Ear Practice.
Otology.**

344. ELLETT, E. C. (*Atlanta Med. and Surg. Jour.*, January, 1898.) An interesting contribution to the subject of the more common diseases of the eye, and of acute inflammation of the middle ear, chronic otorrhea and mastoid diseases. The author calls attention to the inadequacy of Wilde's incision in purulent mastoiditis.

Scheppegrell.

Mechanical Impediment to Respiration During Anesthesia.

345. FOULIS, JAMES. (*British Medical Journal*, April 23, 1898.) Attention is called to the obstruction caused by the tongue and epiglottis falling against the posterior pharyngeal wall during the inspiratory efforts of the unconscious individual. In deep anesthesia all the muscles which pass between the lower jaw and the hyoid bone with the tongue and epiglottis fall backward, moving on the thyro-hyoid membrane as a hinge, until they actually come in contact with the posterior pharyngeal wall and may remain fixed there at the end of an expiratory effort preventing the ingress of air. To prevent this, the head should be permitted to fall back over the end of the table, or a pillow placed under his shoulders. The handle of a tablespoon or fork is then inserted between the teeth and pushed downward and backward on the dorsum of the tongue until it comes in contact with the pharyngeal wall. With this as a lever the epiglottis and tongue may be moved away from the posterior pharyngeal wall and the obstruction thus overcome.

Loeb.

**The Etiology and Study of Atrophic Diseases of the Upper
Air Passages.**

346. GOODALE, J. L. (*Jour. of the Amer. Med. Assn.*, February 26, 1898.) The careful clinical study gives results which indicate that the weight of testimony is distinctly against the theory that non-fetid and fetid atrophy is a sequel to a pre-existing hypertrophy, at least to an hypertrophy as we ordinarily understand the term.

On the other hand, the facts are in direct corroboration of the supposition that the process is primarily an atrophic one, whether we consider it to originate in the action of a specific misro-organism or not.

In pure pharyngeal atrophy, it is more difficult to draw conclusions, owing to the greater complexity of the conditions. Without discussing its etiology, these investigations furnish reason to suppose that a form of atrophic pharyngitis exists, which differs in nature and origin from the conditions called fetid and non-fetid atrophic disease of the upper air passages. *Scheppegeirell.*

Some Lines of Progress in Laryngology, Rhinology and Otology.

347. DUNDAS, GRANT. (*Journal of Laryngology, Rhinology and Otology*, January, 1898.) One of the greatest gains to humanity from increased skill in laryngology lies in the possibility of early detection of malignant diseases of the larynx, particularly in respect to the good results following intra-laryngeal (Fraenkel) and extralaryngeal (Semon) operations; even tracheotomy has been followed by success.

In the diagnosis of foreign bodies in the larynx, skiagraphy offers a practical aid, while transillumination should be more extensively employed. Autoscopy will continue in vogue, though it can never replace laryngoscopy, as Thorner has shown in the removal of a foreign body with the aid of autoscopy.

The neurological aspects of laryngology afford immense opportunity for further work. Notwithstanding the attack of Grossman, Semon's law still stands and the proclivities of the abductors is more firmly established than ever. The occurrence of laryngeal paralysis in locomotor ataxia has long been recognized and ocular laryngeal and pharyngeal paralyses may accompany syringomyelia. There is no reason why peripheral neuritis should not affect the laryngeal nerves, indeed alcoholic neuritis of the recurrent is not unknown. A large percentage of laryngitis finds a cause in nasal conditions, such as those producing mouth breathing and pus. The misuse of the voice so productive of congestion of the larynx, should always be corrected by proper vocal exercises and respiratory drill. While there are still some honest opponents to the use of antitoxin and some arguments against it on the score of danger, the actual results show incontrovertible evidence as to the safety of administering the antitoxin, even in large doses.

The extranasal surgery of the accessory sinuses has been eminently successful, but the intranasal is more ideal, and methods in this direction should be subjected to careful study. When a dental cause is not fairly made out in a case of antral disease, a full trial of intranasal irrigation should be given. The opening of the sphenoidal sinus is now a matter of comparative ease, for which Hajek's hook is the best instrument. Much progress has been made in the direction of irrigating the frontal sinus. As a preliminary, the anterior end of the middle turbinated, and all obstructions, should be removed. Occasionally suppurative disease in the nasal cavities is fatal, hence it is not wise to be too inactive in attending to these cases.

The more frequent occurrence of sclerosis of the middle ear in women than in men has been a matter of constant observation, in regard to which the consensus of opinion of its increase with the birth of each child, the common occurrence of osteophytic deposits between the cranium and dura mater in women dying in child-bed, and Politzer's discovery of osteitis in the outer wall of the labyrinth may have some bearing. Treatment is still imperfect, yet the possibility of osteo-arthritis, syphilis and gout as cause should offer some solace, and massage seems to accomplish more than tympanic inflation. Great variety characterizes the opinions of otologists on the results of intra-tympanic operations.

Several observers have reported the healing of old-standing perforations by the application of deliquescent trichloroacetic acid to the edges of the opening, a method which the writer has followed with success.

In suppurative inflammation of the middle ear, whether recourse is had to the aseptic method, or that of syringing and introduction of antiseptic drops, the necessity of cleanliness is forced upon the physician, as the residua of suppuration in the middle ear occasion defects in hearing, operations are often called for and followed by success. The dangerous sequelæ of suppurative otitis afford material for most anxious study, especially as to the locality in which the disease is localized. It may be centered in the attic of the tympanum, showing itself by the pointing of

abscesses or the presence of perforation in the membrane of Shrapnell, or by losses of substance in the outer osseous wall of the attic. As this natural spontaneous operation occurs too late, the dental engine, which is the best instrument for hastening this evacuation, must often be used.

The mastoid operation has been recently subjected to important modifications, for instance: Heymann and Botey recommend the resection of the superior wall of the osseous meatus in its entire extent.

While otitic pyemia occurs as a result of thrombo-phlebitis of the sigmoid, it sometimes results without this association, and recovery may take place without operative interference beyond the clearance of the focus infection in the petrous bone.

Gradenigo inspires the belief that hysteria enters very largely into many cases of deafness, but he reminds us that there is in hysteria a tendency to arouse the most alarming paralytic or mental symptoms under the influence of traumatism.

Loeb.

Tumors of the Maxilla.

348. KNIGHT, W. (*Jour. Am. Med. Ass'n*, March 26, 1898.) The upper, as well as the lower maxillary bones, besides being subject to diseases affecting other bony structures of the body, are liable to the invasion of neoplasms peculiar and limited to themselves. Among these may be mentioned epulides, dentigerous and multilocular cystic tumors. Where myeloid epulis is suspected, the entire thickness of the alveolar process should be removed on account of the danger of recurrence in a malignant form. In the fibrous form of epulis, the treatment need not be so radical. On account of the possibility of sarcomatous complications in the multilocular cystic tumors, the result will depend upon the completeness of the operation.

The development of sarcoma is frequently very insidious and characterized at first by an intermittancy of the growth. The treatment of sarcoma must be radical, and any contemplated operation should be done as early as a

diagnosis can be made. As long as the sarcoma is confined within the bony walls of the antrum, a hopeful result as to permanent cure can be looked for. But if the disease has passed beyond these confines, any operation, however heroic, will usually result in failure, as it is almost impossible to remove all the affected tissue.

Scheppegrell.

Natural Gas and Eustachian Inflammation.

349. KYLE, J. J. (*Jour. of the Am. Med. Ass'n*, March 19, 1898,) The products of combustion of natural gas are active irritants to the exposed mucous membrane, and may form an exciting cause of catarrhal inflammation of the nose, throat and middle ear.

Scheppegrell.

Pathologic Conditions of the Pharynx and Contiguous Structures During Early Childhood.

350. MILLS, W. A. (*Jour. Am. Med. Ass'n*, April 23, 1898.) The author believes that if careful attention be directed to the nose and throat of children, fewer cases of malformed maxillæ and irregular teeth will be met with in the future.

Scheppegrell.

Stricture of the Esophagus Following Typhoid Fever.

351. PACKARD, F. A. (*Philadelphia Med. Jour.*, 1898.) Esophageal lesions in typhoid fever are evidently of rare occurrence. Adolph Hölscher reports only one case in 2,000, and many pathologists report no instances of this kind. The author describes a stricture of the esophagus in a man of 35 years, resulting from a severe case of typhoid fever.

Scheppegrell.

A Fatal Case of Thyroidectomy.

352. PAUL, F. J. (*British Med. Jour.*, Jan. 1, 1898.) The death in this case was due to the absorption of the thyroid secretion. Another case is described in which severe symptoms were occasioned by the same condition which resulted in both instances, the writer thinks, from

failure to ligate the thyroid isthmus and from squeezing the gland itself. *Loeb.*

Bronchial Carcinoma.

353. POWERS, CHAS. A. (*Annals of Surgery*, February, 1898.) A woman of 48 years suffered from a hard diffused swelling on the right side of the neck. The mass had been growing slowly for over a year and was about the size of a pigeon's egg, deeply seated beneath the angle of the jaw and stretching backward to and beneath the mastoid muscle. The growth was dissected out and pronounced a bronchiogenous carcinoma. A year later an enlarged gland was removed from the region of the scar, this being also pronounced carcinoma. Five years later the patient was free from relapse. *Scheppegrell.*

Tinnitus and Its Relation to Nasal and Aural Affections.

354. RANDALL, B. A. (*Jour. of the Amer. Med. Ass'n.*, March 19, 1898.) The subjective symptoms may be of five forms, viz: Cerebral, labyrinthin, tympanic, tubal and purely nasal. In many cerebral cases, rest and the use of strichnin give relief. In tympanic cases, a little mobilization may alleviate the symptoms, and the finger tip may be used for this purpose. In tubal cases, the bougie is useful, but it is a delicate procedure. Iodin vapor is valuable. Nasal cases are relieved by proper attention to the morbid condition of the nose.

Scheppegrell.

Esophagotomy for the Removal of a Tooth-Plate Impacted Five Days in the Upper Third of the Esophagus.

355. ROE, JNO. O. (*Jour. of the Amer. Med. Ass'n.*, March 26, 1898.) A man of 66 years, while eating felt an upper toothplate slip into his throat and pass into the esophagus. The presence of the foreign body seemed to cause very little disturbance.

The obstruction was found to be in the upper third of the esophagus, just below the cricoid body. It could be

reached by esophageal forceps, but was so firmly impacted that it was not deemed advisable to use the necessary force for its extraction, and an external esogophagotomy was made and the toothplate extracted.

The patient appeared to do well after the operation, but five days later a chill developed, congestion and inflammation of the lungs supervened, and the patient died the following morning.

Scheppegrell.

**Hallucinations of the Gustatory Sense Excited by
Hyoscyamin.**

356. ROUSSEL, J. N. (*New Orleans Med. and. Surg. Jour.*, June, 1898.) A report of two cases, both women, in which hyoscyamin could not be administered on account of the strong taste of asafetida which was invariably excited. The author believes that this was due to a specific action of the hyoscyamin on the gustatory nerve.

Scheppegrell.

**A Case of Recurrent Headache, Each Attack Being Relieved
by the Discharge Through the Right Nostril of a Fluid
from the Cranial Cavity.**

357. SCHEPPEGRELL, W. (*Jour. of the Am. Med. Assn.*, February 26, 1898.) Ten years before applying for treatment, the patient had suffered from a most agonizing headache which persisted for two weeks, when the patient accidentally fell, striking her head and causing a straw-colored fluid to discharge from the right nostril, this resulting in immediate relief. Since this event, the patient had had periodic attacks of headache, lasting from 3 to 10 days, and each attack being relieved by a similar discharge from the nostril. The successive opening of various accessory cavities gave negative results. The patient was also carefully watched by trained nurses, who observed the actual discharge from the nostril.

Microscopic and chemical examinations showed that this liquid discharge from the nostril resembled the cerebrospinal fluid and the contents of the cranial lymphatic vessels in this region, which are almost identical in character. The conformation of the subarachnoid space and its

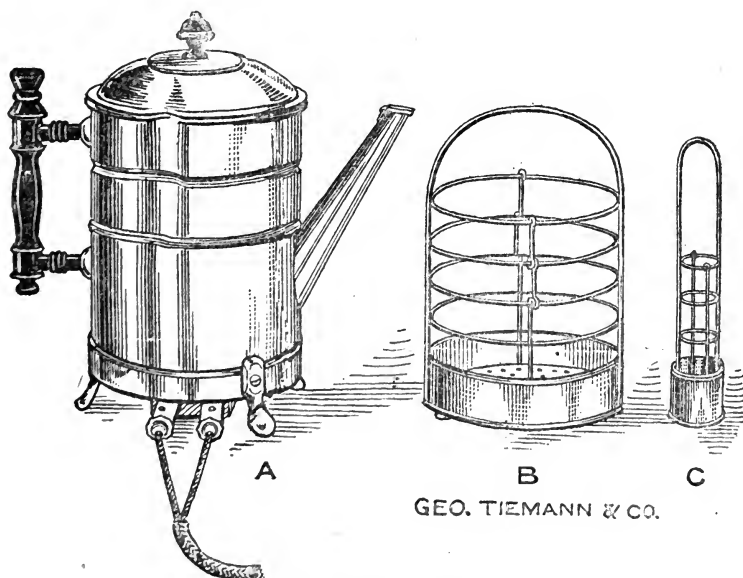
extensive communication would easily explain the depressing character of the headache, but not the fact that the same quantity of fluid came from the nostril after each attack; its abrupt cessation showed a source of limited size.

The author, therefore, believed it to be a cyst connected with the lymphatic circulation of that region, which would not only explain the pressure in the subarachnoid space, but also the limited amount of fluid discharged after each attack.

Hardie.

An Electric Sterilizer for Instruments in Ear, Nose and Throat Practice.

358. SCHEPPEGRELL, W. (*Jour. of the Amer. Med. Assn.*, February 26, 1898.) A vessel of two quarts' capacity is used, the heat being obtained from fine German silver wire at the bottom of the vessel, as in the electro-cautery utensils. It is attached to an ordinary alternating or direct incandescent light current. In this way, boiling water may be obtained in a few minutes.



Schepppegrell's Electric Sterilizer.

In this vessel (A), when used for sterilizing, a wire cage (B) containing the instruments is lowered into the vessel and left sufficiently long to become thoroughly

sterilized. A smaller cage (C) is made for applicators. All metallic instruments used in the office may be prepared in this manner and may be made thoroughly aseptic.

Hardie.

Cocain in Otology and Laryngology.

359. SMOCK, L. P. (*Jour. of the Am. Med. Ass'n.*, March 12, 1898.) Besides the use of cocain in minor operations, the author advocates it for acute rhinitis, acute tonsillitis, laryngeal asthma, and spasmodic laryngitis. Furuncles of the auditory canal in their incipency may, in most cases, be aborted by keeping the canal of the ear packed loosely with cotton saturated with cocain. All prescriptions should be marked "not to be renewed without a written order from the physician."

The abuse of cocain and the formation of the cocain habit the author believes to follow more frequently the use of pills or tablets, containing the drug combined with other medicines, for the relief of nasopharyngeal or laryngeal irritation, or taken internally for the relief of some forms of dyspepsia.

Cocain should not be used in acute rhinitis, not only because the first relief of the congestion of the mucous membrane is followed by its dilatation, but on account of the fact that the cocain habit may so easily be contracted in this manner

It is not safe to allow cocain to remain in the external canal for an unlimited time, as even the slow absorption in this canal and by the tympanic membrane, may produce toxic symptoms. This may be better understood when it is stated that dangerous symptoms recently followed the use of cocain by the Schleich method.

A study of the medical literature would indicate that the most frequent cause of the cocain habit is not by the method described by the author, but by its use as a spray or snuff powder, or by injection as a substitute for morphine. In the south the cocain habit has recently developed to an enormous extent in the colored population, who use it as a snuff for its stimulating effect. It is stated that one druggist alone sell from \$5 to \$10 worth of cocain daily in packages at 5 and 10 cents.

The note which the author attaches to his prescription to warn the druggist against refilling would indicate a greater degree of confidence in druggists in general than the reporter possesses. The only sure method is *never to prescribe cocain under any circumstancee or to place this dangerous drug in the hands of the patient.*

Scheppegregell.

Influenza and Immunity.

360. TURNEY, H. G. (*Lancet*, February 5, 1898.) The author concludes that the period of protection afforded by an attack of influenza is so short as to be clinically negligible and that there is some evidence to show that there exists either a special susceptibility to the disease or an acquired predisposition to it derived from previous infections of the same virus.

Loeb.

PROCEEDINGS OF THE SECTION OF OTOTOLOGY AND
LARYNGOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA,
MARCH 1, 1898.

JOURNAL AMERICAN MEDICAL ASSOCIATION, MARCH 26, 1898,
DR. E. L. VANSANT IN THE CHAIR.

Dr. F. Woodbury read a communication on—

NEUROTIC OR SPASMODIC COUGH,

and presented a case to the members for examination. It was that of a woman 48 years of age, who, when first seen last December, suffered with a peculiar spasmodic cough, consisting of a single explosive effort, recurring with considerable regularity once or twice every minute. There was no expectoration and no pain, but with each cough the head was turned violently to the right side and the face was contorted. The patient was subject also to headache and constipation. She gave a history of having had a severe nervous shock about ten weeks previously, owing to the death of a son with consumption; she had lost much sleep while nursing him for months before his death. Upon examination the larynx and lungs were found to be healthy. In the naso-pharynx the mucous membrane was hyperemic in the vault. The nasal chambers were also hyperemic. The inferior turbinates were swollen. These were shrunk by an application of 10 per cent. solution of cocaine, and a sharp spur was seen projecting from the septum and pressing against the left middle turbinate. When this spur was touched with a probe the patient experienced a thickling in the larynx and an irresistible impulse to cough. As the nose appeared to be the site of reflex irritation causing the cough, it was stated that the removal of the spur and the reduction in size of the turbinates by the galvano-cautery would probably give entire relief. Under

systemic treatment with bromids to reduce the nervous irritability, and laxatives to overcome the constipation, she had already been greatly benefited and had recently gone as long as five days without a cough or headache. Two other cases were reported, one in which the site of reflex irritation was in the throat in a mass of glandular tissue below the left tonsil; in the other one a case of ear cough.

A case of persistent cough due to glandular hypertrophy at the base of the tongue was also referred to, which had been shown by Dr. Donellan at the last meeting of the Section. These cases were described as instances of neurotic or paradoxical cough, inasmuch as the site of irritation was not in the throat or chest, and treatment of the cough was unavailing, except to direct attention to some abnormality which required diligent examination into various sources of reflex irritation. Without such careful search a case might be dismissed as one of hysteric or gouty, or so-called "stomach cough." The necessity of both local and general treatment was pointed out by the reporter.

In conclusion, he warned against mistaking a cough caused by tuberculous infection of the lungs, and previous to the development of sufficient pathologic changes to afford characteristic physical signs in the chest, for merely a nervous laryngeal cough; here the altered temperature, the pallor of the larynx and possibly the detection of the bacilli in the sputum, would suggest the true nature of the case and the proper treatment. Such a case might be neurotic, but not be a case of neurotic cough in the sense in which it is used in this communication.

Dr. P. S. Donellan mentioned a case of obstinate cough, which, after death, was found to be due to aneurism of the arch of the aorta. Irritation of the recurrent laryngeal nerve was suggested as the cause of the cough. He inquired with regard to the so-called stomach cough, if it occurred at all, and if so, with as much frequency as the popular references to it would seem to imply.

Dr. Woodbury said that an overloaded stomach was a frequent cause of croup in young children, and indigestible food will often excite asthma in susceptible subjects;

therefore, the possibility of a stomach cough as a symptom of indigestion might be admitted, but it must be extremely rare, in proportion to the great number of cases of dyspepsia, in which no cough is present. To warrant such a diagnosis, there should be entire exclusion of other sources of reflex irritation, the symptom should only be present after eating food and during the act of digestion, and susceptible of entire relief by careful selection of the diet. It is very probable that many cases of so-called stomach cough are really instances of reflex cough from glandular hypertrophies at the base of the tongue, or some other form of neurotic cough similar to those mentioned in the paper.

Dr. Vansant said that it is a very frequent occurrence, in examining the nasal chambers, to have a patient cough in your face, which is a very disagreeable experience when the patient has an infected cough or bad breath. As a protection, he had found it useful to direct the patient to hold a handkerchief in the hand ready to bring it up before the mouth when he coughs.

Dr. E. L. Vansant presented a—

CASE OF ACUTE EMPYEMA OF THE FRONTAL SINUSES.

A little girl, 11 years of age, was shown who, three weeks ago, had an attack of cold, which probably was the grippe. She had a cough and a discharge from the nose since that time. The mother was anxious about her because a sister, 16 years of age, had died a few weeks ago with consumption. The child now has purulent rhinitis, with acute empyema of the nasal chambers. The question of treatment was suggested for discussion. The reporter's own experience had been that when such cases are given early treatment, they make a good and rapid recovery. After only 23 hours' treatment the present case had very much improved; her cough had lessened; the tenderness over the frontal sinuses had almost disappeared and the secretion was materially reduced. The treatment consisted of active purgation, followed by frequent use of warm alkaline wash and hot moist applications to the frontal sinuses, externally, with clearing away of secretions from the mouths of the sinuses. The patient was

also kept indoors. The relief here has been a quick one; rather quicker than usual in his experience of such cases.

Dr. Gibb.—Empyema of the accessory sinuses is quite a frequent supplement to influenzal attacks. They generally recover with careful management, but I have not seen any get well so quickly as this one. Last summer a young man who, while traveling in Yellowstone National Park, inhaled the alkaline dust and had, in consequence, acute inflammation of the nasal chambers extending into the accessory sinuses, but confined to one side. After cleaning the outlets, thus securing proper drainage for the frontal sinus, and the usual local and general hygienic measures, the patient got well in the course of a week.

Dr. Emma Musson, a guest, asked about the effects of the direct application of oxygen in these cases. In several cases coming under her own observation good results were noted. A prominent specialist had advised opening of the maxillary sinus in one of these cases, which yielded very promptly in the course of a few days to oxygen applied three times a day. After reading Stokes' paper on the treatment of acute otitis media by this method, she had tried it in sinus disease. Subsequently she had read that it had also been applied to the treatment of purulent discharges from the nasal chambers and accessory sinuses.

Dr. Donellan said chronic cases give the most trouble. He reported the case of a woman who had suffered with headache for two years, and he had discovered empyema of the right frontal sinus, with hypertrophied turbinates, the headache being caused and aggravated by the damming up of the outlets. Last week he had seen Dr. Delavan remove the anterior end of the middle turbinated bone with the punch forceps, and he subsequently washed out the sinus with a 50 per cent. alcohol. The case has been very much improved since the treatment.

Dr. J. S. Gibb presented a case of

NEW GROWTH IN THE LARYNX

for examination. It had a papillomatous appearance, resembling what has been described as pachydermia laryngis. The patient had been before the Section some months ago,

and he had brought him back by request in order that the Fellows might watch the case. The growth appeared to be about the same size as when previously shown. He had removed a piece for examination, but the place had been soon filled up again. The growth is on the right side of the larynx, and extends from the arytenoid down to and including the true cord. Its broad flat surface has a rough appearance, and it is almost purely white. Under the impression that it might be of specific nature, he had been put upon potassium iodid, and while his general condition improved the treatment had very little effect on the growth. From the specimen submitted one pathologist reports that the growth is papillomatous, and is an illustration of pachydermia laryngis. A larger piece was submitted to another pathologist, who reports that it is a papillomatous neoplasm, with a suspicion of malignancy; for reasons assigned it would be best designated as an adeno-papilloma.

Dr. Vansant said that the case represented an extremely rare condition, and was the first one that he had seen. The condition of the tongue termed leucoplakia is frequently seen, and it is our experience that such cases frequently become carcinomatous. In a patient, a man who had a rapidly growing epithelioma of the tongue requiring extirpation, he had known that leucoplakia had existed for twelve years. Such a result might be looked for in the present instance, but how long a time before this would occur it would be impossible to predict.

Dr. Woodbury asked the reporter if he contemplated extirpation of the larynx?

Dr. Gibb said: Extirpation of the larynx is a very serious operation and certainly, in this case, one not to be considered at the present time. The report from the pathologist had been obtained with reference to deciding this question, but he did not think that either report would warrant the operation. There is no rapid extension of the growth, no glandular involvement, no deterioration of the general health, and nothing to warrant the idea of malignancy at present. The patient will be kept under observation, and its course reported to the Section from time to time.

Dr. Gibb presented a specimen of

MUCOUS POLYPI SPRINGING FROM THE NASAL SEPTUM.

This is a very rare occurrence. In a large number of autopsies, in which Zuckerkandl had examined the nasal chamber, 30 cases occurred in which mucous polypi had sprung from the middle turbinate bodies and only three presented polypi growths from the septum. The case was that of a woman, 50 years of age, who for several years had had attacks of epistaxis, and more recently had increasing difficulty of breathing through the right naris. About two weeks previous to application for treatment, she had noticed the growth at the entrance to the nostril. Upon examination a polypi was found, which was pedunculated, and it was traced to its attachment on the septum. It was snared off, and there was very little bleeding. The spot was touched with the galvano-cautery and healed readily. This growth is quite different from the cases recently reported by Pierce of Chicago, of bleeding polypi of the nose, which are instances of fungous fibroma or polypus teleangiectoides. The ordinary causes of mucous polypi were absent in the case just reported, as there was no necrosed bone and no inflammation. If this case proves that it is possible for a polypi to develop at any point in the nasal chambers without any previous disease or inflammation, it will certainly upset some of our pathologic ideas as to the causes of these growths.

Dr. Munson referred to a case occurring a number of years ago, in which she had removed with a Jarvis snare a growth as large as a hickory nut, which had grown from the septum. There was no recurrence of the growth, which was characteristic of growths from the Septum.

Dr. P. S. Danellan exhibited a

PHANTOM LARYNX FOR THE STUDY AND PRACTICE OF LARYNGEAL DISEASES AND OPERATIONS.

The chief point of interest attached to this instrument was that it was formerly the property of Morell Mackenzie and had been used by him for daily practice. He would drop in small pieces of paper or beads and remove them with the forceps, thus acquiring his wonderful manual dexterity. The advantage of this method of studying the diseases of the larynx over the ordinary flat diagrams or plates in books is very obvious, but its chief usefulness is in the practice it affords in the use of instruments in the larynx, both for diagnoses and operations.

SCHEPPEGRELL.

NOTES AND ANNOUNCEMENTS.

(Under this heading the ANNALS will publish items of interest to its readers. Please address Geo. Morgenthau, M. D., 34 Washington Street, Chicago.)

At the meeting of the Section of Laryngology and Otology of the American Medical Association, held at Denver, June 7 to 10, 1898, the following were elected as officers for the ensuing year: Chairman, Dr. Emil Mayer, of New York City; secretary, Dr. C. R. Holmes, of Cincinnati, Ohio.

The ANNALS has received the following circular letter from one of its associate editors and bespeaks for the work referred to the hearty support of American aurists.

138 CLINTON STREET, BROOKLYN, N. Y.

DEAR DOCTOR;—It is the desire of the undersigned to bring out in the immediate future a "Review of the work in Otology during 1897," on the plan of Blau's similar work in German. This "Review" will consist of a thorough resumé of the Work published; conflicting opinions and deductions being placed in comparison; work involving new researches, new methods and new ideas being treated *in extenso*. In other words, the desire is to make this work a review from the aurist's standpoint, containing the gist of the year's work in otology, and written in such manner that, in general, the reader will not find it necessary to refer back to the original article for explanation or amplification, as has invariably been necessary in the case of the reviews on otology published in English heretofore.

In order to bring out this work, it is necessary that a certain number of subscribers pledge themselves to purchase the book; the price has been fixed at five (5) dollars per copy.

Will you kindly sign enclosed blank and fill out slips and return as soon as possible to address given? Very truly yours,

H. A. ALDERTON.

BOOK NOTICES.

A RHINO-OTOLOGICAL CASE RECORD.

Arranged by Edwin Pynchon, M. D., Chicago. Clinie Publishing Company; Chicago, 1898.

While at first glance this case record might seem to be rather more elaborate than necessary, it will be found upon examination to be admirably arranged for quickly and accurately noting the history and condition in nose, throat and ear cases. It is in the form of a small note book, of 16 pages, bound in Manila cover, and of note paper, one book being designed for each patient, to be preserved by the physician and filed for future use on the card index plan. Pertinent questions and suggestions of points for investigating tend to facilitate the examination. On the dotted hair-line figures abnormalities may be noted. Two pages are given to the right and left nares, two pages to the fauces and larynx, and four pages to the ears, two of which are for subsequent tests, at different dates, in order to show progress. One page is devoted to recording chronologically all operations done, and several pages are left blank for record of treatment. As one of the best lessons which the profession can take from commerce is methodization, the record form assists the examiner by inducing him to be methodical and exact.

EAR RECORDS.

A method of recording ear cases. arranged by John C. Lester, M. D., and Vincent Gomez, M. D., New York. J. W. and G. H. Hahn, 1898.

The large paged book contains record sheets for nearly 200 cases, together with an alphabetical index. The form adopted was published a little over a year ago in the Reports of the New York Eye and Ear Infirmary, and has had a satisfactory trial there. Without some such book an accurate keeping of records is impossible and the writers and publishers are deserving of thanks for their work. The book would have been even more useful than it is, if more than two tuning fork blank records had been provided for each case. A second edition will doubtless correct such misprints as Pulitzer and Electrolysis.

ATLAS OF DISEASES OF THE LARYNX.

By Dr. L. Grünwald, of Munich. Edited by Charles P. Grayson, M. D., Lecturer on Laryngology and Rhinology in the University of Pennsylvania; with 107 colored figures on 44 plates, and 25

text illustrations. W. B. Saunders, Philadelphia. Cloth, \$2.50 net.

This is the third volume of an English edition of the "Lehmann's medicinische Handatlanten," and fully sustains the claim of the publisher that for scientific accuracy, pictorial beauty, compactness and cheapness, these books surpass any similar volumes ever published. The work is of course of particular value to the physician when opportunities for clinical observations are restricted, but the beauty of the plates will make the volume useful to every laryngologist. Besides being an atlas, Grünwald's work is really a concise treatise on laryngology, and the colored illustrations are usually instructive from the fact that a short case history accompanies each one.

ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

VOL. VII.

AUGUST, 1898.

No. 3.

A REVIEW OF THE PATHOLOGICAL CONDITIONS
AFFECTING THE LINGUAL TONSIL.*

BY E. C. ELLETT, M. D.

MEMPHIS, TENN.

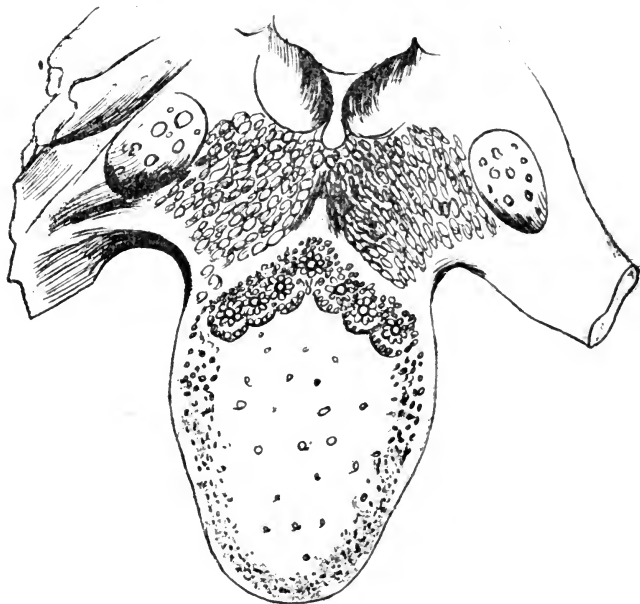
OPHTHALMIC AND AURAL SURGEON TO ST. JOSEPH'S HOSPITAL, THE
CHILDREN'S HOME, AND THE SHELBY COUNTY POOR AND
INSANE ASYLUM, MEMPHIS, FORMERLY HOUSE SUR-
GEON IN ST. AGNES AND THE WILL'S EYE
HOSPITALS, PHILADELPHIA.

The study of the lingual tonsil is one of the newer paths in diseases of the throat. In 1877 Heyman described this organ, if we may so term it, and at the same time Stoerck called attention to hypertrophy of the lymphoid tissue at the base of the tongue as a cause of irritation of the epiglottis. In 1880 Lennox Browne made a communication to the Milan Congress of Laryngology on this subject, which is further treated in the second edition of his book. In 1886 Swain described "hypertrophy of the papillæ, or lymphoid tissue at the base of the tongue." In September, 1887, Lennox Browne brought the matter to the attention of the Philadelphia County Medical Society. With the prestige of such an introduction, this region became more carefully studied, and the result has been

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numerous papers in the past ten years on the various pathological conditions found in this locality.

Somers describes this organ as the anterior portion of the oro-pharyngeal lymphoid ring, lying behind the circumvallate papillæ, in the pre-epiglottic space, continued upward laterally to almost merge into the faucial lymphadenoid tissue. The lingual tonsil, as we now call this mass of tissue, is divided into two lobes, or portions, by the median glosso-epiglottic ligament, and lies flat on the muscles of the tongue. It is composed of separate follicles,



not bound in a smooth mass like the faucial tonsils, and varies in thickness from $\frac{1}{8}$ to $\frac{3}{8}$ of an inch. The accompanying sketch, copied from Morris' anatomy, is the best illustration of this region, which I have seen.

The blood and nerve supply of this region is abundant, in fact Swain says the tissue is so vascular as to be almost erectile, and the abundant nerve supply explains the neuroses and reflex symptoms to which diseases affecting this part may give rise.

We must remain in some doubt as to the function of this tissue, as we are of its kindred neighbors, but Somers suggests the following:

(a). It acts as a pad to prevent the lodgement of food in the pre-epiglottic space.

(b). It serves, by virtue of some mucous glands, to moisten food and lubricate the region.

(c). It also moistens the circumvallate papillæ and thus assists in the sense of taste.

In addition to these, there is doubtless some part which it, in common with other lymphoid tissues of this locality, plays in the physiology of the throat, and of which we, as yet, have no accurate knowledge, except that, in some measure, it sacrifices itself in the effort to prevent the absorption of deleterious products, from various sources, into the lymphatic system, just as lymphatic glands elsewhere in the body do.

Now, that no examination of the pharynx or larynx is complete till this region is inspected, we know that, as Lewis says, "derangements of the lingual tonsil are not exceptional, but very common." In one hundred consecutive patients with naso-pharyngeal symptoms, Scheppegrell found this organ diseased in eight, and Arrowsmith found it fifty-six times in two thousand cases, examined in Jonathan Wright's clinic at the Brooklyn Eye and Ear Hospital.

The lingual tonsil does not attain appreciable size till the 6th or 7th year, hence all diseases of it are seen at a later period than those affecting the other oro-pharyngeal lymphoid tissue, a point which will be referred to in detail later.

In presenting a review of the pathological conditions found in this organ, I find it convenient to group them briefly as follows:

1. Acute inflammation, including abscess.
2. Chronic inflammation, including hypertrophy and varix.
3. Specific inflammations.
4. Neoplasms.

Before going into separate consideration of these processes, it might be well to call attention to the similarity between the lingual tonsil and its faucial neighbor. Keeping in mind that the former is a simple and the latter a compound follicular gland, the changes are analogous,

presenting much the same clinical, and almost identical histological, pictures.

Acute inflammation of the lingual tonsils is not often mentioned, probably because, as Swain suggests, the condition is overlooked, and the symptoms due to it ascribed to something else. Milligan has reported two cases under the head of "Angina Epiglottidea Anterior," one in a girl, the other in a male adult. They presented symptoms of acute faucial inflammation, with edema of the epiglottis, unusually severe dysphagia, and marked constitutional disturbance. Swain emphasizes cough as a symptom, which he says is present from the start, and may persist for weeks. I have recently noted this symptom in a case in which, though the larynx and bronchi were much involved, the cough was greatly in excess of what usually accompanies these conditions.

Villecourt's case is extensively quoted and is quite unique. A woman of thirty was taken with acute lingual tonsillitis, inspiratory dyspnoea and cyanosis. There was a feeling as if a foreign body was in the throat, inclination to swallow, sialorrhoea, heaviness and difficult motion of the right arm, obtunded cutaneous sensibility and diminished electrical reaction. Applications of chloride of iron to the tonsil relieved the local by the third, and general symptoms by the eighth day. Seifert has seen a somewhat similar case, and Polyak one case of acute follicular inflammation, with edema of the glottis, and the general symptoms that accompany faucial tonsillitis. The inflammation may be follicular or perifollicular, the follicular being, as in the faucial type, accompanied by more marked constitutional symptoms.

The causes of acute inflammation of the lingual tonsils are the same as those of the faucial. Exposure to cold, possibly contagion, and a rheumatic diathesis are probably the most potent. One of Milligan's cases was thought to be miasmatic from defective sewerage.

The treatment consists of hot applications, steam inhalations, demulcent drinks, and astringents in solution or powder. Swain recommends a poultice the first night followed by sucking ice, with a gargle every two or three hours of hot milk and water if the trouble advances, fol-

lowing this by an alkaline drink of chlorate of potash and borax, and a cold alkaline spray between times. When cough comes on, or in phlegmonous types, he uses steam inhalations early. Locally he applies boro-glyceride, insufflates a powder of tannin and morphine containing $2\frac{1}{2}$ per cent. of the latter, and finishes with an oily spray. Scarification of the tonsil and of the epiglottis is often necessary, and rarely tracheotomy is demanded on account of the edema of the glottis.

Chloride of iron has been mentioned. In follicular forms, emptying the follicles is of distinct advantage while in all forms systemic remedies preceded by a purgative should be considered, especially salol or other antirheumatics where this diathesis exists.

It is a short step from acute inflammation to pus formation. This condition may also be overlooked, though not apt to be if the region is routinely inspected. Ruault reports six cases, four of which were unilateral, and emphasizes the fact that there is no swelling of the neck or cervical glands. His treatment consists in deep scarifications. Mounier recommends that the incision be made with a galvanocautery knife to avoid bleeding. In Swain's report, from which I have already borrowed so freely, he cites the case of a woman of 35, who had acute lingual tonsillitis following faucial tonsillitis, and going on to abscess. The abscess did not form in a recognizable degree till the 20th day, and pointed externally over the cornu of the hyoid bone.

Chronic inflammation is the pathological condition most frequently encountered in the lingual tonsil, and shows itself in the production of an hypertrophy or varix, and frequently the two combined.

Hypertrophy, or enlargement of the lingual tonsil, acts mechanically to cause symptoms of its presence, by contact with neighboring parts, particularly the epiglottis. Delavan says that "contact between the tip of the epiglottis and the base of the tongue without undue antero-posterior folding of the epiglottis may be taken as an indication of hypertrophy of the lymphoid tissue." That is to say, there is normally a space between the two. The condition can only be diagnosed with a mirror, since

rarely is the hypertrophy large enough to be seen directly, though a case of Thrasher's, mentioned by Bowen, in which the tumor attained the size of a walnut, was doubtless an exception to this rule, and in a case of my own, in a mulatto woman, I not only saw the growths without instrumental aid, but amputated them with a straight tonsillotome.

What was said in regard to the age at which affections of this organ usually appear is especially true of hypertrophy. Clark puts it at from 18 to 35. Arrowsmith's 58 cases were as follows: 12-20, 8; 20-30, 27; 30-40, 10; 40-50, 9; over 50, 4. McBride mentioned a case in which he found hypertrophy in a child of seven, and Bosworth thinks the process begins early, and the symptoms appear late.

As stated, varix is usually associated with hypertrophy. In most cases the veins on the side of the tongue in front of the lingual tonsils are enlarged, though Foster's case presented enlarged veins clear across the base of the tongue. This condition varies from simple enlargement to marked tortuosity, with bluish vascular dilatations as large as a No. 8 buckshot. The specific symptoms of this condition are hemorrhage and tenesmus.

Considering these two conditions together then it is in order to speak of the causes leading to them.

Age had been mentioned, most cases being seen in the third decade. Sex is also a factor, most observers giving the preponderance to females, except Seifert, who in 106 cases, found 58 men and 48 women. Of Arrowsmith's 56 cases 50 were women, and Quinlan estimates that 66 per cent. of cases are in women. So far my own cases have been equally divided as to sex.

Scanes Spicer attributes many cases to absorption of perverted secretions from the nose and throat, hence naso-pharyngeal irritations and infectious diseases with naso-pharyngeal manifestations (as diphtheria and scarlatina) are causal factors. Constitutional diseases, such as syphilis, scrofula, rheumatism and possibly tuberculosis are at times apparently responsible for the hypertrophy. Irregular menstruation, uterine disorders, and the menopause are probably responsible for the preponderance

of females affected. I was called some miles out in the country last spring to see a girl with dysmenorrhea and symptoms of acute enlargement of the lingual tonsil attending each menstrual period, becoming, on this particular occasion, quite alarming.

Ruault found buccal and dental lesions in 35 of 120 cases, and thinks that these conditions are often a cause, and naso-pharyngeal irritations are not.

Causes acting directly on the tissue are highly seasoned articles of food, alcohol and tobacco, the latter being given prominent places as causal factors by Lennox Browne. Exposure, use of the voice (hence singers according to Roy, and in the same way cornet playing in one of my cases) all play their part. Lewis finds the enlargement frequently in cases of goitre, and causing characteristic symptoms, an observation which Bowen failed to substantiate in an examination of six cases of goitre.

Remotely acting factors are general or local vasomotor paresis, hepatic congestion or cirrhosis, constipation, indigestion and cardiac disorders, causing what Dayton calls a "general varicose diathesis," all of which would be especially potent in making the varix relatively prominent

The usual symptoms of this condition are as follows:

- (1). A sensation of a foreign body in the throat.
- (2). A feeling of constriction at the upper border of the thyroid cartilage.
- (3). Reflex cough.
- (4). Constant and ineffectual attempts to clear the throat.
- (5). Quick laryngeal fatigue.
- (6). Hemorrhage.

The sensation of a foreign body may come on suddenly after a meal or may be of more gradual development. It is probably the most constant, and sometimes the only symptom, and is often accompanied by a pricking sensation. A real foreign body may be permitted to enter the larynx from disturbance of the motion of the epiglottis and give rise to choking.

Of the sense of constriction at the upper border of the thyroid, not much can be said except that it is present.

Especially in neurotic patients will this be exaggerated into globus hystericus, dyspnœa, choking, etc. This was noted (dyspnœa) in the mulatto woman whose tonsils I removed with an Ermold tonsillotome, and was also seen by Arrowsmith in some of his cases.

The constant desire to clear the throat is graphically described by Lennox Browne as "faucial and pharyngeal tenesmus," that is, "a constant inclination to void, by hawking or swallowing, a real or imaginary substance from the pharyngeal portion of the alimentary tract, usually accompanied by discomfort, and sometimes by actual pain and resulting in the expectoration of a little mucous only, which occasionally, and especially on rising from sleep, is tinged by the admixture of a small quantity of blood, analogous to tenesmus of the bowel, and many patients with rectal hemorrhoids have the above symptoms from an homologous condition of the vessels of the throat, hence *Throat Piles*." Tenesmus, unless in the presence of varix, is rare.

Laryngeal fatigue is noticed most in public speakers and singers. Mulhall thinks "the affection is especially likely to cause symptoms in singers with high soprano voices, for the reason that the higher the note sung the more erect the epiglottis. Its erection is hindered by these hypertrophies and the notes most valuable to the soprano are either not possible or else their quality is destroyed." Aside from this mechanical interference, quick fatigue and hoarseness from laryngeal irritation is common. I believe most cases of so called "delicate throat" and recurrent laryngitis depend upon this condition.

Hemorrhage is a symptom of which we should always bear lingual varix in mind as a possible cause on account of the usual dread significance of "spitting blood." The dilated vessels are uncovered and easily ruptured. Doubtless all of us have seen such cases. In my cornet player this was a prominent symptom. Joal saw three cases in otherwise healthy people, and Foster has reported in full a recent case in *The Laryngoscope*, with which you are all no doubt familiar. In his case the veins were enlarged all across the base of the tongue, while in all of my cases

it has been the lateral veins only which became affected. In cases of recent hemorrhage the point of rupture can usually be seen with the mirror.

Less usual symptoms are laryngeal vertigo, as in a case of Gleitsmann's cured by treatment of the lingual tonsil; esophageal spasm, cured in Joal's case by treatment of the lingual tonsil; submaxillary fullness, thought by Grant to be caused by occlusion of the lingual veins by pressure; asthma and croupy spells referred to by Dayton, and especially the case of nocturnal asthma which Casadesus relieved by treating the lingual tonsil.

The treatment of hypertrophy and varix in this locality is both general and local. In addition to removal of any recognizable cause as far as possible and the correction of any constitutional dyscrasia, if possible, a general tonic treatment is advisable. Delavan gets good results from mixed treatment even in non-specific cases. The frequent associated uterine disorders makes us often need the aid of our gynecological brother.

Local treatment consists in removal of the offending mass by surgical means, or its gradual reduction by the application of such substances as we know to possess this power.

Various tonsillotomes with curved handles have been devised by Roe and Myles, and with these ablation of the mass can be accomplished. I have said that this can sometimes be done with a straight instrument. These methods are not attended by any hemorrhage. The snare, hot or cold, has its advocates, but is not so easy to manipulate. The method which enlists most followers, is the destruction by the galvano cautery. A curved electrode guided to the cocainez area by the aid of the mirror, and contact then made, gives a thorough and painless method of treatment which I have found very efficacious. The ordinary platinum point suffices, though Scanes Spicer prefers the porcelain core. Several applications are necessary, the object being not to excite a disagreeable degree of reaction by too zealous treatment.

Winckler has devised a curved currette, but I think the tissue is too tough to permit such an instrument to be used to advantage.

Of medicinal applications, iodine and glycerine (Churchill's tincture) is the most generally used. Silver solutions, gr. x to gr. xx to the ounce, are favored by Lewis, Kronenberg and Somers. Ruault uses mentholated oil, in addition to iodine to the gums. Lugol's solution may replace Churchill's tincture, while Kronenberg uses resorcin, and cauterizes with chromic acid, which I have found to be distinctly inferior to the galvano cautery. Recurrences, which sometimes occur under medical treatment, are to be combatted by iodine.

The *specific inflammations* to be considered are tuberculosis and syphilis. I have not seen, nor can I find in literature any case of tuberculosis affecting this region, though I have examined carefully for it in several cases of laryngeal phthisis.

Syphilis is not so rare. One case of primary syphilis is recorded by F. Schiffers, the patient being a man of twenty-seven with a chancre on the left lingual tonsil, 5 x 6 m.m. There was dysphagia and enlargement of the cervical lymphatics.

Later in the disease the manifestations are rather common. From a study of the lingual tonsil in seventy-one cases of syphilis, Seifert thinks it is usually affected when there is pharyngeal involvement. He saw no chancres. Of the seventy-one cases, ten were in the tertiary stage, and of these ten the lingual tonsil was hypertrophied in two and ulcerated in one. In all three there were other throat manifestations, and one of the three was a case of hereditary syphilis. In 61 cases of secondary syphilis he saw twenty cases of involvement of the lingual tonsil, in only one of which was there absence of other throat lesions, though several of the cases had the usual faucial symptoms without involvement of the lingual tonsil. I have recently seen a male adult with late syphilis and ulcerations on the fauces and pharynx and ultimately a sloughing ulcer on the left, and a mucous plaque on the right, tonsil (lingual). The symptoms were rather mild in comparison with the extent of the lesion. In addition to the internal treatment, of which I deem iodide of potash the principal part, applications of acid nitrate of mercury or lactic acid are the most efficient means of local treatment.

Very few *new growths* have been observed in the lingual tonsil. Rueda reports a retention cyst in a woman of 25, in whom the principal symptom was the feeling as of a foreign body in the throat. This he opened and destroyed by means of the galvano cautery.

Onodi reported a fibrosarcoma in a girl of seventeen, the diagnosis being made by microscopical examination, but no operation was undertaken. He found two similar cases in French literature. Jonathan Wright presented a patient to the New York academy of medicine suffering from an angioma of the lingual tonsil, accompanied by naevi on the face, and preceded, twenty years before, by a mass on the gum, which was cauterized. He had not operated on this patient, but expected to do so with a Paquelin cautery. Gleitsmann finds injections of chloride of iron a very satisfactory form of treatment for the vascular growths.

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THE AFTER TREATMENT OF RESTORED DEFLECTED NASAL SEPTUM.

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The subject of this paper has been suggested to me on account of the fact that in most of the papers written upon operative work upon the deflected septum, and in discussions following these papers, the period for the wearing of the splint has differed so from my later experience in this work that I think it well to offer some suggestions with regard to this subject. In septal work a great deal depends upon the after treatment of the case, as regards the patient's comfort and the ultimate success of the operation.

One must conclude from the papers written upon this subject, and the discussions thereon, that this is an operation of extreme simplicity, with the evident absence of discomfort to the patient; with lack of inflammatory reaction; with the ease with which the splint is removed and reintroduced, and the absence of annoying complications. Operators who have had much experience in this work, I am sure, will agree with me that in 90 per cent. of these cases the above stated deductions do not hold good. No one can deny the fact that the wearing of a foreign body within the nasal cavity, which is required to fit snugly, producing slight pressure, is attended with some pain. The pain is greatest during the first week, and becomes less as the wearing is prolonged, but is not absolutely relieved until the foreign body, producing pressure, is removed. Nor can the fact be denied that such a body as a splint of hard rubber placed within the nasal cavity will produce temperature and inflammatory reaction. About the edges of such a foreign body, especially when placed in such a vascular organ as the nasal cavity, we are apt to, and do have exuberant growth

of granulation tissue in proportion to the length of time the foreign body is worn.

I have given above three such self-evident propositions that they require no argument to sustain them.

How to lessen the severity of the condition above mentioned will be the purpose of this short paper. Whatever operation is done to relieve a deflected septum, it is necessary that the resilience of the septum should be destroyed and a splint be introduced within the nasal cavity to hold the septum in position until union has taken place and the septum has become fixed in its new position. It has been my experience that if the operation be done well and thoroughly the retention splint is usually only required for a period of about ten days. I have also found that the comfort of the patient is not increased by the removal and re-insertion of the splint during any period of the wearing of the same splint, nor the ultimate result of the operation enhanced thereby.

After an operation upon a deflected septum I consider it sound medical practice to keep my patient abed until he is practically free of fever. He is more comfortable and better protected from unpleasant complications. This period usually averages about four days. I know that some operators do this operation without having temperature, but I have never been so successful in this line and, therefore, prefer to keep my patients quite abed until the temperature period is passed. Irrigation of the nasal cavity with a carbolyzed alkaline solution is resorted to three times daily, and the surgeon dresses the case carefully once a day, removing all crusts that accumulate about and within the splint. General and local treatment is resorted to, so as to make the patient as comfortable as possible. The patient is placed upon a low diet. Formerly I resorted to the method of daily removing the splint, cleansing the cavity and re-introducing the splint. Lately, during the past two years, I have not invariably resorted to the removal of the splint until its final withdrawal at the end of ten days.

I know that it is stated that the removal of the splint and the introduction of another is devoid of pain, but such has never been my experience. In some rare instances,

after the second or third withdrawal and insertion, there is no pain, but this has been the exception. In some cases, especially where the deflection involves the osseous structures, which are being well held in position by the primary splint, the removal of the splint occasionally allows one of the fragments to drop back a little into the old position, so that when the attempt is made to re-introduce the clean splint we find not only some difficulty in applying the splint, but often cause the patient hours of exquisite agony. After causing considerable pain to one of my patients, in a case of the type narrated above, I concluded to try the continuous retention of the splint for a period of a week. I felt convinced that the nasal cavity could be kept clean by frequent cleansing, and that by holding the septum immobile for a shorter period more could be accomplished than by the constant meddling over a longer period. With some feelings of anxiety I watched the first case, which progressed unusually favorably. On the seventh day I removed the splint and re-introduced another, which latter was removed on the ninth day. The splint was never re-introduced. The result was perfect.

Since treating the first case with such marked success I have followed the same course in almost all of my subsequent cases, and with the same degree of success. The septum remains absolutely in the same position given it, and shows no more tendency to sag back into the old position than it did when I formerly required my patients to wear the splint for a period of thirty days. Formerly I found that in some of my cases I was terribly annoyed by granulations; in the short period of wearing the splint they are very infrequent, and when occurring never reach sufficient size to require attention. Temperature range is, if anything, less, and of shorter duration than in my former cases. The neuralgic pains, which are present more or less in every case, are about the same whether the splint is worn continuously or changed frequently. Pains of a neuralgic character occasionally cease only with the absolute dispensing with the wearing of the splint; therefore, the relief is somewhat earlier in these cases when the splint is worn ten days than when it is

worn thirty days. The discomfort due to the wearing of the splint is somewhat great, and if this can be reduced, as it can be by lessening the duration of the wearing of the splint and without imperiling the result of the operation, it should be done.

In conclusion, I would state that in all cases of horizontal deflection of the septum, involving either the osseous or cartilaginous septum, or both, and in many of the vertical deflections involving the cartilaginous septum, the result of the operation is as satisfactory with a short continuous wearing of the splint as in a longer period of wearing, attended with frequent changing of the splint, and all discomfort to the patient is markedly lessened by the shorter period of the wearing of the splint.

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OTITIC CEREBELLAR ABSCESS.

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(Continued from Feb. No., 1898.)

Translated and abridged by Drs. H. A. Alderton and J. Ketterle,
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Of a total of 19 cases of dural fistula due to chronic otitis media suppurativa the situation was:

In region of the sulcus sigmoideus, 6 cases (associated with thrombosis of the sinus).

In region of the labyrinth, 6 cases (in two, thrombosis of the sinus petrosus superior).

On the posterior pyramidal surface, 5 cases (in two, thrombosis of the sinus sigmoideus).

Under the superior petrosal sinus, 1 case (associated with thrombosis of the sinus).

Without particular account, 1 case (thrombosis of sigmoid sinus).

Caries and pus-formation of the posterior pyramidal surface lead, in one-half the cases, to phlebitis of the neighboring sinus. The sigmoid is most endangered, and is often involved in caries and inflammation of the sulcus sigmoideus, especially as the inflammation is so close to the sinus wall; with large extra-dural abscesses, inflammation of the sinus wall is easily set up, and especially, as a large number of veins from the mastoid and labyrinth lead to it and thus may assist infection. The superior petrosal sinus is not so often affected, and then only, when the posterior border of the pyramid is the seat of the caries. The sinus petrosus inferior has been affected in only one case, that of Jansen. The sinus phlebitis is oftentimes non-infectious (gutartig). A thrombus forms on the inflamed walls, it undergoes the usual changes, and finally leads to obliteration of the sinus. Generally the surrounding tissues become involved with the thrombus: it becomes purulent or putrid (verjaucht). The wall of the sinus

becomes necrotic in places, or a fistula is formed that generally leads to bone, or at times to brain abscess.

In 52 cases of caries of the posterior cranial fossa are noted:

Cases of Thromboses.

Sigmoid sulcus, 12-9 (of the s. sinus).

Post. Pyramidal Surface, 24-11 (8 of the s. sigmoideus, 2 of the Sup. Petros. sinus, 1 of the Inf. Petros.-sinus).

Post. surface and labyrinth surface, 5-1 (of the sigmoid sinus).

Sulcus and Post. surface, 3-2 (of the sigmoid sinus).

Sulcus and labyrinth surface, 2-1 (of the sigmoid sinus).

Labyrinth surface, 3-1 (of the Sup. Petros. sinus).

Extensive necrosis, 3-2 (of the sigmoid sinus).—52-27.

Thereto appear with intact, or not particularly described posterior pyramidal surface:

Extradural abscess, 2 cases with 2 thromboses of the S. sigmoid.

Pachymeningitis externa, 5 cases with 5 thromboses (4 of the S. sigmoid, 1 of the S. Sup. Petros.)

Finally isolated, without particular description, 4 thromboses (of the sigmoid sinus).

TOTAL.—Sixty-three cases, with 38 sinus thromboses, of which 33 affected the sinus sigmoideus. Of these 38 thromboses 13 had a non-infectious pathological, more or less organized, and 23 a broken down thrombus, and in two there was no particular account.

In 63 out of 76 cases of chronic otorrhea with cerebellar abscess, there was present on the anterior wall of the posterior cerebral fossa, marked and important pathologic changes, so that we believe that these changes are a necessary and important stage in the growth and development of cerebellar abscess. In 6 cases out of 76, the abscess followed suppuration in the labyrinth, without any microscopic change on the posterior surface of pyramid. As frequently as cerebellar abscess is a sequel to inflammation of the labyrinth, where the posterior wall of the labyrinth protrudes through the posterior surface of the pyramid, so rare is it where the labyrinth capsule remains intact.

A carious process in the middle ear or mastoid naturally may frequently spread in several directions. Thus it can in-

volve the middle as well as the posterior cerebral fossa, and in just as marked a degree. The posterior fossa is often gravely diseased, but there are cases in which the posterior surface of the pyramid was intact, while caries and pachymeningitis externa were present over the tegmen tympani et antri.

In 14 of the 76 cases existed caries and pachymeningitis externa of the middle cranial fossa.

In association with the same process in equal extent in the posterior cranial fossa, 6 cases.

In association with the same process to a much greater extent in the posterior cranial fossa, 4 cases.

With intact posterior pyramidal surface, 4 cases.

It is interesting to compare the situation of the abscess with the situation of the causative disease. For this comparison we can naturally use only small abscesses. This shows that out of 21 median abscesses 12 cases had their origin outside of the sulcus, in that region that borders on the antrum and labyrinth, or through an opening in the posterior surface of pyramid and leading from an inflamed labyrinth; five cases showed posterior surface of pyramid intact, (here, however, the labyrinth had not been examined), but one case showed simply a suppurative otitis media without complications. The remainder of reported cases contained no account of the condition of the temporal bone. Twenty cases of lateral abscess showed 9 to have caries of sulcus, 2 phlebitis of sigmoid sinus (1 having an extra-dural abscess), 5 cases had caries on posterior pyramidal surface, 1 case of intact bone, 1 case of total destruction of the bone, 2 cases, no description.

Resume.—*There are two sources for cerebellar abscess of equal importance: (1) The labyrinth, with the neighboring portion of antrum mastoideum. (2) The sulcus and sinus sigmoideus. The first usually leads to abscess in the median portion, while the second leads to abscess in the lateral portion of the cerebellum.*

Symptomatology.

We speak of three stages of brain abscess: (1) Initial; (2) latent; (3) terminal. All abscesses have these stages. If we see an encapsulated abscess, that has led

to death in a few days, it is evident that the abscess has not existed simply during eight days, since pathologic-anatomic research has shown that several weeks are required to create a well-formed capsule. As the patient experienced no symptoms until a few days before death, we can then account for a latent stage. We must grant an initial stage, inasmuch, as such a sensitive organ as the brain would not put up with strange and pathologic material in its midst, without at first producing some symptoms, at least until it became accustomed to the invading disease. Although the recognition of three stages are desirable in theory, and although they have been observed in traumatic abscesses, we seldom prove their existence in otic abscesses. We cannot say that they do not occur, because, in acute otitis media which leads to abscess, the ear symptoms so overshadow the symptoms of the 1st and 2d stages that we cannot clinically separate them; in chronic otorrhea, which in these cases usually depends on caries and cholesteatoma, we can seldom say whether certain symptoms (dizziness for a few days, headache near diseased ear, and vomiting) are due to a growing abscess or to the ear disease. So it happens we have only three cases in which there was some probability of having differentiated the first and second stages, and one of these cases is very doubtful.

Harrison treated a patient who had recurrent otorrhea, and for several months past had again suffered. At the end of May the man had suddenly severe otalgia, vomiting and otorrhea and felt sick and wretched. After one week he recovered and felt well, but became more and more emaciated, had obstinate constipation and was often restless and delirious. On July 20 the abscess symptoms of the terminal stage appeared. Winter and Deanesly report a case in which the aural condition was uncertain. The patient had temporary headache and vomiting at Christmas, then felt quite well for a week, and the clear abscess symptoms appeared first toward the end of January.

In a case of Macewen's, old otorrhea, the disease began with two days of headache, dizziness, and vomiting, followed by a free interval of six days' duration, and after that the final stage set in with severe otalgia.

The third stage therefore only is of practical value to us. With its beginning the general condition of the patient is pretty well affected. He is weak and miserable, constantly wants to be recumbent, eats little and has some chills. The body temperature acts curiously; a large number of cases showed normal or subnormal temperature; or during the physician's observation (which usually lasted only a few days) the temperature did not rise. Four (4) cases showed a single rapid and momentary rise of temperature. Eight (8) began the third stage with rise in temperature which lasted a few days and then became normal to the end. Nine (9) cases showed a lasting fever, generally slightly remittent; five of these cases had a marked rise in temperature. Therefore we conclude that uncomplicated cerebellar abscess has no temperature or only slight and temporary rise; subnormal temperature more often than a very high rise.

The third stage begins with general brain symptoms: headache, vomiting, dizziness, sleepiness, slow cerebration, pulse slowed, constipation, convulsions, optic neuritis. These symptoms accompany brain abscesses and a long list of other affections.

Even otitis media has not rarely some or other of these symptoms. Are there any symptoms which point to a cerebellar abscess? Headaches are never wanting in the third stage. They are often severe, so that patient groans and cries, holds head between hands, and seeks to avoid every movement. It is usually limited to back of head and neck, but may affect other parts of skull on the side of lesion, and in rare cases on the other side.

In 87 cases we find it reported: Twenty-three times in occiput and nape of neck, 6 times in the brow, 5 times in the occiput and brow together, 3 times in the temple, 4 times in the parietal bone, once in the coronary suture and in one case (of Schwartz's) the headache existed in the beginning on the side of the lesion, and only later went over to the opposite side. It is diffuse but most intense on affected side.

Tenderness on percussio is only once reported; one has rarely used it. Pain on percussio is mentioned only once. Vomiting is a brain symptom, especially present

in disease of the posterior fossa, as it is often found here and is hard to combat. Severe and uncontrollable vomiting was reported in 8 cases, while vomiting was present in 53 cases out of 86.

Dizziness was present in 30 cases out of 86, being severe in 6; 4 cases had severe dizziness and vertigo only in the beginning, losing them latter. Here lateral abscess and purulent sinus thrombus were found in connection with caries and pus in labyrinth. Macewen and Jansen each had a case where dizziness, of varying intensity, accompanied the entire disease. Macewen cleared out a small lateral abscess and a broken down thrombus in sinus sigmoideus and symptoms disappeared. Jansen's had an abscess (size of a hen's egg) with softened surrounding tissue, and caries at sulcus from cholesteatoma. Severe *dizziness* is seldom present in cerebellar abscesses, and its presence points in dubious cases to the labyrinth. *Dizziness and vomiting* are symptoms of many other brain affections, but usually with middle and inner ear disease.

They are valuable as *otic-brain-disease symptoms*, only after we have found, by operative measures, that the labyrinth is intact and can exclude other middle ear diseases. Then will constant dizziness, severe and uncontrollable vomiting be taken as valuable symptoms of cerebellar abscess. Therefore we must guard the value of these symptoms in diagnosis. Opening of the mastoid is a good method of relieving brain and meningeal symptoms; headache, dizziness, vomiting and other brain symptoms may disappear after opening the mastoid but there still may be a complication lurking below in the skull contents. In that case often in a few days the symptoms return, and aid the diagnosis. The peculiar psychic condition of patients which Macewen calls "slow cerebration" is a prominent symptom in most cases that have been carefully studied. With this "disinterestedness" of the patient, we contrast the oversensitiveness of other patients; the latter cannot bear light and noises; are very restless at night with delirium and crying out; and have a sleepy countenance which evidences restlessness and torture. Rarely there are severe excitations, as profound restlessness, delirium and insomnolence. Consciousness is not

affected, and although the patient is downheartened and apathetic, or even if he is slow to answer, he hears, sees and understands everything. He is easily aroused from sleep. Consciousness remains almost to end. Deep coma is a very ominous symptom in connection with brain abscess, being more important and ill-omend than Cheyne-Stokes respiration. One-half of the cases showed slowing of the pulse. It drops to 60, 50, 45 and becomes irregular. Sometimes goes lower still, in one case 40, in another 20. The pulse does not remain slow at all times. Pulse is often regular, changes its condition often and slowness may only show when there is a temperature change. In Murray's case pulse was sometimes 60, sometimes 40 or 20. It has no relation to size of abscess. Two-thirds of all cases with slowing of pulse were mostly small abscesses and many uncomplicated. On the otherhand some of the large and complicated abscesses showed no slowing even in two weeks' observation. If the slowing of pulse is accompanied by chills and remittent fever it points to a sinus phlebitis with extradural or cerebral abscess; sinus phlebitis alone usually has a frequent pulse.

After emptying of the abscess, the pulse frequently rises as a rule, although the pulse may remain slow for some time without formation of a second abscess. Thus the only symptoms after two cases of operation were a pulse of 40 and 50 respectively a few days after.

Out of 81 cases 38 pulse slowed, 15 normal, 4 abnormally frequent, remaining not reported.

Out of 14 cases of sinus phlebitis with cerebellar abscess 8 showed slowing of pulse, while 6 had a pulse corresponding to temperature.

Sometimes a pulse slowing is present in an otorrhea: for instance, where there is coincident heart trouble which causes no complaint. It may help to mention here a case of this kind which led me astray for a few days. A young man, who formerly had occasional ear trouble and who had now a defect in ear drum, took cold, and following this there occurred left sided earache and headache, accompanied by gastric disturbances, vomiting and constipation for several days. The headache was mainly

over the temple, and there was right over the ear a point sensitive to percussion. Pulse, 54-50. Attention was mainly centered on his ear, and ophthalmoscope was used in effort to find local symptoms of temporal abscess. Gastric symptoms disappeared following castor oil, and upon examining the heart, it was enlarged, the tone clear, the apex beat was outside of nipple-line, broadened and intense. Earache and headache disappeared under proper treatment, but pulse remained slowed. The patient was later forced to go to bed by heart trouble, but showed none of the symptoms of his former ear and head trouble.

Out of 86 cases 26 showed constipation. It belongs to symptoms of general brain trouble, and is of diagnostic value where persons have been regular, and where it resists cathartics for several days.

General convulsions noted in 14 cases. We divide these cases into two groups according to age. First group (5 cases) includes adults and it is here that convulsion was a terminal symptom, and the coma ended in death. Schwartz, Heiman and Deutchbein each had a case with hydrocephalus internus in various stages; Thompson and Okuneff found hyperemia in cloudiness of meninges. The second group includes children and young adults whose ages were 2 to 16; here convulsions are an accompaniment of the end stage and lead to death. But the disease may begin with convulsions that later disappear. There are general convulsions with coma, grinding of teeth, *deviation conjugee*, and generally also stiffness of neck and opisthotonus. Sometimes the convulsions are infrequent, but in some cases the convulsions occur almost hourly, so that the young patient has hardly time to get out of one coma before another comes. Children easily have convulsions, even in the mild cerebral troubles or a simple otitis media acuta. It is noteworthy that 7 out of 9 cases showed more or less severe hydrocephalus internus, while one case showed no change in ventricles. Where convulsions are an accompaniment of cerebellar abscess, we have a right to assume presence of hydrocephalus internus as a complication.

One-quarter of the cases showed optic neuritis. It is

probably more frequent than this, but examinations were not fully carried out in this direction. Nevertheless, 7 cases showed no optic neuritis even on closest and repeated examinations, and yet autopsy showed one abscess or more, encapsulated and probably of several months' existence. This complication (neuritis) is especially more frequent with cerebellar abscesses that are accompanied by sinus thrombus or extradural abscess. However, it may be present in uncomplicated abscesses or even in small abscesses. We believe, however, that a severe and wide spread neuritis is especially an accompaniment of the large, uncomplicated abscess, and one of long standing. Twenty-one cases out of 81 showed optic neuritis while 7 cases showed nothing. Of the 21 cases 4 were complicated by extradural abscess, 8 with sinus thrombosis. In two cases neuritis appeared only on onset of meningitis. The length of time required to develop neuritis in these cases may be judged by the following cases of Drew and Knapp: Drew's case (1). Girl, age 16, first saw her two weeks after an otitis media acuta; 3 days later (i. e. 17 days after beginning of otitis) she had the first sign of neuritis, which later grew worse and was accompanied by hemorrhages. Death came 4 weeks later and autopsy showed an abscess involving entire left cerebellar hemisphere. Knapp's case (2). Female, age 25, mastoid was opened to relieve otitis media; 4 weeks later symptoms of general cerebral trouble; 22 days later a beginning double neuritis; death 14 days later; autopsy showed cerebellar abscess, temporal abscess and sinus phlebitis. Optic neuritis is usually equally severe on both sides; occasionally it is more marked on side of abscess. In early stages it may be limited to the side of the abscess.

Winter and Deanesly report a case of left-sided abscess, in which neuritis was limited to left papilla. Macewen observed a left-sided neuritis which developed at the time when a meningitis developed, following bursting of a left-sided abscess.

The optic neuritis accompanying cerebellar abscess is usually not severe; there is redness and cloudiness of the papilla, obliteration of its border, distension and tortuous-

ness of the veins. A further degree of neuritis is present only when abscess is of several months' standing; then the papillary border may be wiped out, the papilla covered with grayish white exudation, that spreads along the course of the vessels; veins distended and tortuous, and occasionally showing hemorrhages at the papilla and retina. Recovery from neuritis, after emptying of the abscess, is slow, and Macewen found neuritis in one case 11 weeks after operation. It usually disappears entirely, and seldom leaves behind a disturbance of eye function. A cerebellar abscess never leads to atrophy of the optic nerve.

The disturbances of vision are usually so slight as not to be noticed by the patient. How striking these are is shown in cases of Macewen and Berridge, in which three became totally blind. Macewen observed a child aged $4\frac{3}{4}$ years who had left-sided otitis media purulenta following scarlet fever; 14 days after was totally blind, and had stable mydriasis. After five weeks these symptoms disappeared, child became well and remained so for three months.

December 2 she had sudden severe browache, felt sick and took to bed; 4, XII., vomiting and slight rigidity of neck, speech and articulation disturbed, vomiting and constipation—crying at night—case became worse. 11, XII., numerous, severe general convulsions, with opisthotonus and coma; with these attacks, again became blind, pupils widely dilated and inactive; positive optic neuritis on both sides; eyes otherwise healthy; rigidity of neck. Next few days convulsions returned, finally coma with "crihydro-céphalique;" temperature subnormal, pulse frequent and small; died on 17, XII. Autopsy showed local purulent meningitis in vicinity of a large abscess that reached to pons and was perforated. With this, abnormal distension of both ventricles and the spinal canal is also filled with serous fluid containing fibrin particles. The whole circumscribed purulent meningitis following the perforation of the abscess, probably originated only during the last few days, and made its presence known by coma and the small frequent pulse. To account for the first blindness in July, and the second attack

in 13, XII (combined with general convulsions), there must have been abscess and hydrocephalus.

Cerebral abscess and sinus phlebitis, which often cause a severe optic neuritis, have never been accompanied by bilateral amauroses; nevertheless, the sudden onset of blindness is noticed in convulsions, and the degree of visual disturbance shows in no way the development of papillitis. We, therefore, take for granted that severe hydrocephalus internus causes blindness. The floor of the third ventricle, the optic tracts and chiasma are affected by the paralyzing pressure of the fluid. The disappearance of the blindness in July is accounted for by supposing a movement of the fluid, which has been observed.

Macewen's second case. Boy, age 17, old left-sided caries. Was suddenly stricken, middle of February, 1889, with general cerebral symptoms, sleepiness, occipital pain, vomiting, general malaise. Three days later he had a kind of apoplectic attack with coma, stertor, dilated pupils, small frequent pulse; following this, blind in both eyes, pupils wide and fixed.

There developed a picture which was a typical case of abscess (cerebral); when conscious, there was slow cerebration, marked rigidity of neck, masseters contracted and rigid, marked emaciation, slowing of pulse, with subnormal temperature, medium degree of optic neuritis. With this, incontinence, fixed flexion of left arm, skin reflexes lost, left side patellar reflex lost. The amaurosis remained unchanged.

15, V., 1889. Left-sided cerebellar abscess was opened; pus evacuated amounting to 120 ccm. Following this, symptoms improved. Sight returned even before all neuritis was gone.

Macewen does not give an explanation for bilateral amaurosis in this case, but simply says that amaurosis is not rarely observed in cerebellar affections. Grant that there was, even in this case, a meningitis serosa ventricularis; could not this have disappeared when its cause (abscess) was removed? Would not a meningitis (of brain and cord) account for the previous symptoms of lost reflexes, incontinence, etc.? As stated before,

might not absorption have followed the removal of the abscess?

Third case—Berridge. Patient age 17, chronic otorrhea. August, 1879, became ill with headaches, malaise, choking. Despite a voracious appetite he is pale and emaciated. Temperature normal, speech slow, pupils dilated, papillæ somewhat cloudy. These symptoms abated for some time, but reappeared in December. Then he vomited, had severe occipital headache, well developed optic neuritis, amaurosis in both eyes. This lasted to death, 12, III., 1880. Autopsy showed abscess that involved nearly all of right cerebellar hemisphere. The further description of brain was wanting in the report.

These three cases undoubtedly show, that cerebellar abscess is occasionally accompanied by double amaurosis; as no case of temporal abscess has, as yet, been accompanied by double amaurosis, this complication is of diagnostic value in determining the probable seat of pus.

Direct Focal Symptoms.

Cerebellar abscess, in a majority of cases, is situated alone in the hemispheres. We know little positive about the function of this part of the brain. It has something to do, according to direction of fibers, with the fronto-occipital lobe, the labyrinth of the ear, and with the sensory nerves of the muscles; It has probably an influence on co-ordination of muscles and equilibrium of body. These functions, however, are so well represented in other parts of the brain that correction of these properties soon takes place after a lesion of a hemisphere. Nevertheless, dizziness and vomiting are frequent symptoms of cerebellar abscess that can, in certain cases, be avoided. Occasionally the abscess directly, or its surrounding softened zone, reaches the vermiform process, and may even lead to its destruction. Lesions of the vermiform are often accompanied by disturbance in movement of upper extremity, disturbance in carriage of body, changes which are not assisted by use of sight; *i. e.*, cerebellar ataxia. This symptom is rarely a focal symptom of cerebellar abscess. Perhaps this is rather a symptom of irri-

tation, while abscess and softening in this location produce initial symptoms.

Six cases of our statistics showed suppuration and softening of vermiform as found by autopsy, generally in large areas, nevertheless, only one case had disturbance in mobility.

Hadden reports a case of abscess transversely situated in the vermiform process under upper surface, and patient became unable to walk. This symptom appeared a few days after onset of general cerebral symptoms, lasted 12 days, and ended in death. This abscess, which possesses a distinct membrane, surely was of long duration.

Gibbon. Patient, two days before death, was able to stand up and walk about. Death came suddenly upon bursting of abscess; autopsy showed that whole cerebellum was involved except anterior one-third of vermiform and of the left hemisphere.

Cerebellum as a whole, according to Luciani, is the seat of the centers for the musculo-nervous apparatus of the body. Strengthening this belief, Macewen draws attention to the apparent depression and prostration of all strength, the smallness of the slowed pulse and respiration that were noted in two cases of his. Report of further cases is wanting.

Luciani noted, in extirpation of cerebellum, general marasmus that resisted all treatment. To emphasize this belief, recall the emaciation and loss of strength in cerebellar abscesses. This does not occur very often in cerebral abscesses, but 17 cases of our cerebellar abscess showed this symptom. This emaciation does not depend upon fever and digestive disturbances; it was ever more frequent where the temperature was normal or subnormal, and was present where vomiting was almost absent. Neither does it depend on long continued illness; it appears suddenly and becomes extreme in a few days.

There are two symptoms often accompanying cerebellar abscesses that are not direct focal symptoms, but seem to be more or less specific; they are nystagmus and disturbance of the patellar reflexes. The first symptom (nystagmus) is not often an accompaniment of cerebellar abscess, but as it occurs with every intracranial complication of

otitis media, or as it may be an accompaniment of a great variety of diseases of middle ear and labyrinth (purulent or not,) we cannot say that it is a diagnostic symptom. Our statistics give four cases of nystagmus; one case of Winter and Deanesly was a small uncomplicated abscess; another case (Jansen, Schwartz and author,) had as a complication sinus phlebitis and caries of horizontal semicircular canal, or necrosis of the labyrinth. I am of opinion that this symptom has not, as a rule, been closely looked after; perhaps it is present in a minor degree more often without having labyrinth of diagnostic importance. Disturbances in patellar reflex have been observed several times. It may be wanting on the side of the abscess, or on both sides may be lessened or increased. As such a symptom has not as yet been observed in temporal abscess, we can, therefore, consider a one-sided loss of reflex as a valuable symptom of cerebellar abscess, if meningitis can be excluded. The finding of this symptom was formerly neglected, and in late years we pay more attention to it.

Macewen and Körner each report a case where the patellar reflexes were lost on the side of the abscess. In Körner's case the reflex of opposite side was also diminished. It is worthy here to note that K.'s case had hydrocephalus internus, and the post-mortem examination of the spinal canal could not be made. Macewen's case got well, but there were several reasons for belief in presence of hydrocephalus. This leads us to believe that this symptom depends on meningitis serosa. Bilateral increase of patellar reflexes was noted in a case each of Macewen and Friedeberg. Friedeberg's case had small abscesses in both hemispheres. Macewen's case showed, a few days later, symptoms of meningitis purulenta. Bilateral decrease of patellar reflexes was noted in a case of Milligan and Hare. There was a small uncomplicated abscess in middle of anterior border of right hemisphere. Death had taken place 12 days after first symptoms.

Exceptionally cerebellar abscess reaches to and involves the pedunculi cerebelli, and sometimes into pons, although the characteristic symptoms that ought to ac-

company lesion of the pedunculi cerebelli ad pontem were not observed.

Three cases of this kind are reported by Macewen, Thompson and Hedinger.

Indirect Focal Symptoms.

Cerebellar abscess exerts a variety of influences on its surroundings. This influence extends further than to the tissue that is directly replaced by the abscess; it increases pressure in the posterior fossa, but owing to the consistence of the brain the pressure is greatest on the immediately surrounding tissue. We have one symptom which indicates an increased pressure under the tentorium, viz., tetaniform convulsions with rigidity of neck and opisthotonus. These convulsions have been noticed in a few cases, perhaps only temporarily, or ushering in the end; this has been found with large and small abscesses, but we have seen a large number of abscesses that never had such a symptom. It seems that the real cause of the convulsions is hydrocephalus internus, and its presence was demonstrated in a number of such cases. Likewise, it has been found that large abscesses are not any more frequently accompanied by local pressure symptoms than small abscesses. It seems, therefore, that symptoms do not depend on the amount of diseased matter.

Abscesses can lead to vasomotor disturbances just as tumors do. This disturbance, which is generally an edema, may involve the whole of the brain, or may cause hyperemia of meninges, or meningitis serosa, or hydrocephalus internus.

We cannot set aside the belief that some abscesses, especially the quick acting ones, are of toxic nature. Such collection of pus may have its chemical changes, that can easily affect such sensitive structures as brain and respiratory centers. May not this account for sudden death in some cases, even where autopsy showed only a small abscess, with no edema or enlargement or changes in surrounding structures? The remote effect of abscess is sometimes irritant, sometimes paralyzing. This produces general and local brain symptoms, and this makes the abscess manifest; the number and variety of these

symptoms produce various pictures during the last stages, These symptoms generally disappear if the cerebellar abscess is evacuated; that is, if the cerebellar abscess is the cause. There are, of course, various local symptoms depending upon location, whether in the vermiform process, medulla, crura, pons, etc.

Remote effects upon the vermiform process could not often be observed, owing to an accompanying labyrinthine suppuration. Occasionally we can observe effect upon the vermiform in large and small abscesses, and we may have symptoms varying from slight loss of equilibrium to well pronounced cerebellar ataxia. (Here 11 cases are reported to prove statements in foregoing paragraph.) Such disturbances in equilibrium are not pathognomonic of cerebellar abscess. They are occasionally found with temporal abscess, meningitis serosa ventriculus, or even with meningitis purulenta. It (equilibrium disturbance,) sometimes accompanies disease of the membranous semicircular canals.

We will note here that following otitis media purulenta chronica, a suppurative inflammation of the labyrinth may be caused by penetration through the fenestræ, or a carious spot through the horizontal semicircular canal. These cases are numerous, and often, after opening into bone and being confronted with the real situation, it is difficult to say whether the disturbances of co-ordination and equilibrium were due to labyrinth affection or cerebellar abscess.

Compulsory involuntary movement and position (Zwangsbewegung, zwangstellung), and disturbances of equilibrium toward one side, due to remote action on the *pedunculi cerebelli ad pontem*, are not often reported. Their presence clears up the picture, but gives no clue to the size or situation of the abscess.

Rigidity of neck, the most frequent local symptom of cerebellar abscess, is due to irritation of the lower surface of the brain in the posterior fossa, and of the spinal cord. It may be present from the beginning of the end stage, often changes its intensity and may temporarily disappear; it may appear only toward the end. It does not, in uncomplicated cases, reach to such a complete rigidity as is

found in purulent basilar meningitis (when it reaches the spinal canal). If an abscess is accompanied by such obstinate rigidity, we suspect basilar meningitis or hydrocephalus internus as a complication. This symptom is especially present in large abscesses, or those involving the lower median surface. Some rigidity has also been found with extradural abscess and sinus phlebitis, but this was probably due to the same cause (meningitis of the base,) that might have been developed and disappeared. This symptom was noted in a few cases of abscess in the temporal or occipital lobes. Therefore, rigidity of the neck becomes of diagnostic value, only after the mastoid and posterior fossa have been opened, and the posterior surface of the petrous bone is found to be intact, or after an extradural abscess has been emptied, or a thrombus has been removed from the sinus. We must not forget that we must wait a few days in the case of thrombus before trying to make a further diagnosis. To differentiate from meningitis we must think of severe rigidity and other symptoms; from temporal abscess, remember that rigidity of the neck is not such a frequent accompaniment of temporal abscess as of cerebellar abscess, and then is usually present only with large abscesses that have other symptoms (such as crossed paralysis, amnesic aphasia, hemianopsia). It is, therefore, a frequent and valuable symptom in cerebellar abscess, the full worth of which must be carefully determined in each individual case. Of course, pain usually accompanies rigidity.

If the spinal cord is involved, there is disturbance of respiration. The patient becomes soporific, breathes irregularly, coma ensues, with finally Cheyne-Stokes respiration and death. Pulse frequent, weak and small. This is the usual picture.

Occasionally the breathing becomes, during the terminal stage, slow, superficial and irregular, consciousness may remain even if Cheyne-Stokes respiration appears.

A peculiarity of cerebellar abscess is the acute paralyzing of the respiratory center, while the pulse remains undisturbed and full, or possibly slightly slowed. If we here use artificial respiration, life may be prolonged 24 hours.

If we open the abscess, as in one case of Truckenbrod's, respiration may again be resumed, after periods of wavering or Cheyne-Stokes respiration. This phenomenon occurs easily in chloroform anæsthesia, and then takes us unawares. Thus, we operate on the mastoid for some reason, without ever thinking of possible cerebellar abscess, or we may trephine in the temporal region, and suddenly the phenomenon takes place. Of course, chloroform alone may do this, but if there is the least possibility of the existence of an abscess we should not hesitate to open the posterior fossa and search for it; if respiration is not resumed after one-quarter to one-half hour artificial respiration must be undertaken. We cannot make a prognosis as to the outcome of such a seizure. In Truckenbrod's case the abscess was not entirely emptied; a case of Zeller's showed no improvement after opening the abscess; further explorations have not, as yet, been made. This symptom has no relation to the size or situation of the abscess, as it has been found with abscesses, large and small, median and lateral.

A similar picture occasionally follows rupture of the abscess into the ventricle. However, there are differences. With rupture, pulse becomes small and frequent, pupils widely dilated; irregular, fixed, and convulsions or general paralysis takes place.

Disturbances of speech, owing to cells and fibers of pons and medulla being affected, are rare. Five cases are reported. The appearance of disturbance of speech, in a right-sided affection, and its motor character, always make this a noteworthy symptom. Disturbances in swallowing, which usually accompany disturbance of speech, have not been noted in uncomplicated cerebellar abscess.

Paresis of both lower extremities has been reported in one case each by Feinberg and Gribbon. First case, double-sided abscess in both hemispheres; the symptom (paresis) was present for some weeks, together with pronounced cerebellar ataxia. Second case, noticed during last 24 hours of life, and patient at the time was fully conscious. The abscess was of great size.

Cases of crossed paralysis, due to affection of motor

tracts in medulla, have not been seen. However, there are two cases of one-sided paralysis: Macewen found, accompanying a large abscess in left hemisphere, a fixed flexion of left arm, this being the remains of a former left-sided hemiplegia. The arm was entirely useless, elbow fixed, the muscles rigid and small. After opening the abscess recovery took place. Macewen says that this symptom is due to compression on the pyramidal tracts after their crossing, and he points to the fact that the cerebellum has a median lobule that reaches to the spinal canal, and so may produce direct pressure on the sides of the spinal cord in the neck.

Drummond reports a case, peculiar and unexplainable. A child (aged 9 years,) with a double-sided otorrhea, developed general brain symptoms, weakness of right arm, and attacks of right-sided spasms; during intervals patient was conscious. With this there developed a paresis of the right leg, and of the mouth branches of right facial; child became speechless, but understood everything. Drummond trephined without results at left temporal and cerebellar region. Death eight days later, and all that was found was a superficial abscess of right cerebellar hemisphere, containing 30 gm. of pus, being situated three-quarters of an inch from medulla oblongata.

Hemiplegia alternans noticed in one case of Gluck. This was only a local symptom of a left-sided cerebellar abscess that involved the vermiform and stretched from one hemisphere to the other. Death followed in fourteen days.

The facial of same side was involved (in Winter and Deanesly's case,) at times, with its orbital branches. The action of the abscess, which also affected the pedunculi cerebelli, reached eventually to pons, and probably affected the fibers of nerves after the crossing and before entrance into the nucleus.

Spasm affecting the orbital branch of the facial is noted in one case of Schwartze. This began three days before death. Abscess was accompanied by severe hydrocephalus internus.

The abducens of same side was affected in three cases. These were two small lateral abscesses and one small me-

dian abscess in immediate vicinity of pons. The length of time of existence of this symptom could not be determined in two cases, as they were first seen 24 hours before death. Doubtless it depends on some change in the center, because the abscesses were here too small and were not favorably situated to produce direct pressure.

Insufficiency of both *m. recti externi*, especially of the crossed variety, was observed by Hadden in a case with direct focal symptoms of the vermiform. This abscess contained 30 ccm. of pus, and reached from the right hemisphere (close under upper surface,) to the left hemisphere. Here, too, the disturbances were doubtless due to affection of center by edema.

Diplopia with very wide pupils, without further history as to the nature of the disturbance, was reported by Friedeberg in a case of large abscess that lasted several weeks and involved two-thirds of left hemisphere.

Disturbances of branches of the motor oculi are frequent, such as dilatation of pupils, squinting, fixed position, ptosis. Disturbances of pupil were reported in 22 cases. Either the pupils of both sides were much dilated, or the dilatation was limited to side of lesion; the pupil either does not react to light, or very slowly and irregularly. This symptom may show very clearly, may remain several weeks, may change, or may become well marked only toward the end. This symptom may be found with all cerebral troubles, no matter in what situation; however, according to situation of things in cerebellar abscess, we can believe or take for-granted that it depends on distant action on the corpora quadrigemina, or the anterior portion of the oculomotorius nucleus. Strabismus was noted in four cases. Crossed ptosis with dilated pupil was noted in one case (Moos and Steinbrügge). This symptom appeared 24 hours before death; full consciousness existed, and the other eye muscles all functionated. There was here an uncomplicated abscess that involved nearly all of the left hemisphere, and a part of the vermiform process. Age of patient 23; sex, male.

The nuclear region of the oculomotorius and abducens is the boundary district for the action of temporal and cerebellar abscess. Whereas, the first very often affects

the oculomotorius, and by preference often involves the center for the levator palpebræ, which lies anteriorly and near the center for the sphincter iridis; the latter (cerebellar) only occasionally involves the center for the oculomotorius, and without regard to the sensitive sphincter center, prefers the posterior center of single eye muscles.

Involuntary fixed positions of the globe of the eye are not frequent. Case of Winter and Deanesly five days before operation, a fixed position upward, and later toward side opposite lesion. The patient was conscious and had no spasms, could at times with much trouble bring the eye to middle line; but it would at once resume its former position. As in this case there was also a turning of the head to the side opposite the lesion, we consider this a symptom of irritation of the middle section of cerebellum. Fixed position has not so much diagnostic value in children, as they easily become so affected in other brain troubles. All of these eye symptoms are to be found even more frequently with meningitis, and are, therefore, only of importance when taken in connection with other signs.

Of the trigeminus, only the motor portion is generally affected. How characteristic of a central lesion to have a double-sided affection—trismus. It is not generally severe, the masseters are rigid, the teeth are in contact; the mouth, however, can be opened without much trouble. This symptom is usually accompanied by rigidity of the neck; it may appear at any time during the final stage, but seems to remain stationary after once having made its appearance. In two cases of Macewen the trismus was accompanied by mechanical opening and closing of the mouth, *i. e.*, a kind of yawning or gaping.

Trismus is reported in seven cases, due in at least one case to severe hydrocephalus internus. Of the remaining six cases, three were very large abscesses, three were small.

Hyperesthesia in the branches of 5th, was reported in only one case (Schwartz's), and on the side of the lesion.

With cerebellar abscess there may be involved a large part of the nuclear region, and of the fibers of pons and

medulla; oculomotorius, trigeminus, abducens, facialis, centers for speech and respiration.

Involvement of the following in otic cerebellar abscess has not been observed: namely, trochlear, glossopharyngeus, vagus, accessorius and hypoglossus. Owing to simultaneous ear trouble we cannot tell much about the auditory nerve. The action does not, as a rule, reach beyond the median line.

Double-sided involvement of the cranial nerves is rare, if we except the pupillary branches of motor oculi. Rarer still is crossed affection of the nerves. Bilateral functions, such as that of the trigeminus, respiration and speech are, of course, affected bilaterally.

We have no report of direct destruction or involvement of a nerve trunk; there is such a thing as partial damaging of a nerve or its function, or a simultaneous damaging of several cranial nerves that are in proximity at their nuclei but are not in proximity at their trunks. If there is only a single nerve involved, the abscess is so situated as not to produce any pressure on that nerve. We conclude therefore that we have to deal with a central lesion in cerebellar abscess.

To these symptoms we add a disturbance which depends on affection or involvement of the cord: namely, weakening or paralysis of the bladder and rectum. We find this condition not rarely with abscesses that have led to meningitis, and also with uncomplicated abscesses upon the appearance of sopor or coma of the end stage. Sometimes incontinence appears during the course of convulsions, as is well known. On the other hand there are cases in which difficulty with bladder and rectum appears during the last days or weeks of the terminal stage, at a time when the patient is almost or entirely conscious, and in cases in which no meningitis can be proven. This symptom was observed in one case of temporal abscess of Barker's. During the last few days before the operation and while consciousness was not entirely lost urine and faeces were involuntarily passed. The incontinence of urine remained two days after successful opening of the abscess. Therefore incontinence is not such a rare occurrence in cerebellar abscesses and is a useful symptom for

differential diagnosis from temporal abscess. This is due in part of the cases to a hydrocephalus internus, and in some of the cases of meningeal irritation which has affected the covering of the cord.

This list of symptoms, in whole or in part, accompany cerebellar abscesses. It is just a limited number of symptoms that clears up the diagnosis; they would be too many for labyrinth trouble or an extradural abscess, too few for a basilar meningitis.

Conclusion: The nearer a cerebellar abscess reaches to the middle line, the more it is apt to produce focal symptoms; and *vice versa*, the more local symptoms present, the more is there a probability of a median or a large abscess. The vaso-motor or toxic influence of abscess is generally limited so that a lateral abscess rarely reaches the middle line.

Course and Termination.

Cerebellar abscess may be present early in an otitis media acuta, but its first manifestations may be obscured by the ear trouble. However, in a week or so, the effects of the abscess are more marked and at last they may predominate over the ear symptoms. Such a close following of abscess upon ear affection is noticed in one-half of the cases.

In other cases the acute otitis media seems to subside, symptoms abate, the perforation probably heals, and we have every reason to hold out a favorable prognosis, when suddenly symptoms of abscess appear. The period between the ear trouble and appearance of abscess symptoms may be several weeks to several months.

In no case can we determine the exact stage; we are always dealing with the end stage since the symptoms when once begun make variable progress. The length of the terminal stage varies from 3 days to $2\frac{1}{2}$ months. The average is 2 weeks.

Cerebellar abscess following chronic otorrhea, with a few exceptions, is generally met with in the 3d stage. The approach or appearance of abscess often produces a peculiar variety of premonitory effects. The ear trouble which has existed for several years without causing com-

plaint suddenly changes its character; thus, suddenly, there is severe earache, the otorrhea increases, or as is more general, ceases suddenly, the mastoid swells, the facialis becomes paralyzed. These ear symptoms are of importance in double otorrhea to determine the situation of the abscess. In rare cases a blow on the head may lead to the appearance of the abscess symptoms. The longest time of existence of abscess symptoms was in one case of Macewen's, from June, 1891, to May, 1892.

Whether the abscess has its origin in an acute or chronic otorrhea, the time of appearance and the development of the symptoms are much alike. Constitutional and general brain symptoms appear first generally, while the local symptoms appear later. Very seldom does the abscess first show with a set of local symptoms. In many cases there are only general symptoms, no local symptoms appearing.

If one takes into consideration the similarity of initial symptoms in acute and chronic otorrhea, the similarity in length of terminal stage, and lastly the close relation between the arrival of the terminal stage and the renewing of the ear affection in chronic otorrhea, he is justified in suspecting that many abscesses in chronic otorrhea are acute abscesses. And does not an autopsy in these cases which generally shows abscess with no membrane or only a rudimentary one strengthen this belief?

In some cases with chronic otorrhea the abscess does not produce any symptoms. The patient, from the very beginning, has pronounced meningitic symptoms that increase progressively; the autopsy shows an abscess, whose presence was never suspected, its only manifestation being meningitis from perforation. This is a rare occurrence, being reported in 7 cases; in an eighth case death was due to hemorrhage from the carotid, and autopsy showed an abscess which had never produced symptoms.

At times the abscess somptoms may be overshadowed by a coexisting sinus-phlebitis, the abscess being found at the autopsy.

Regarding the anatomic termination of an abscess we have made observations above. We saw that in one-fourth of the

cases meningitis causes death, that some cases die of a progressive encephalitis, rupture into the 4th ventricle, hydrocephalus internus, sinus phlebitis or some other complication. In one-half of the cases the final cause of death was not determined. If a manifest abscess leads to meningitis the temperature increases, and with it, as a rule, the pulse, headache increases and becomes diffuse, consciousness becomes somewhat affected, there is alternate delirium and somnolence, twitchings, paresis, disturbances of sensation, rigidity of the neck and back. The progressive softening of the surrounding tissue does not in anyway affect the abscess symptoms. The disturbances that follow rupture into the 4th ventricle we can study only by analogy with rupture into other ventricles. In both cases of rupture we have observed, the accompanying and complicating symptoms obscured the picture.

In many cases where the results at autopsy were negative, especially in cases where the abscess adhered to the dura and led to perforation through a fistula, death is more or less characteristic. The patient suddenly becomes soporific, this rapidly progresses to coma, pulse becomes frequent and small, respiration superficial and irregular, often the Cheyne-Stokes type soon follows, and at times the temperature rises. Death soon follows in a few hours; the patient who seemed well yesterday is dead this morning. Rarely is death postponed more than 24 hours from the beginning of such symptoms. Six of these cases succumbed to acute asphyxia.

Clinical Picture of Cerebellar Abscess.

There are several types whose symptoms are important in diagnosis. The following 3 cases will illustrate the several types:

A—Group with pronounced and manifold local symptoms,

Case of WINTER and DEANESLY—Sixteen year old boy suffered since August, 1893, with deafness in left ear at times. On Christmas there was sudden headache and vomiting that passed off in a few days; he recovered enough to go about his work. January 1, 1894.—Sudden severe pain in left ear, head and neck; was compelled to retire to bed. During the next few days vomiting and left-sided otorrhea. From February 2, he could not sit up, lay at all times bent up and on right side, and opposed all attempts to shift his

position; from Feb. 3, some photophobia and strabismus with fixation of bulbi upward.

6-II-94—Somewhat emaciated, always tired and sleepy, yet easily disturbed and shrank from light. Answered unwillingly and only upon repeated questioning; however, gave good answers and a useful account of himself. Complained of diffuse headaches that were especially severe in forehead and left parietal region. Severe inflammation of left middle ear, with swelling of auditory canal and thick pus, mastoid intact, hearing on that side lost. Tem. 36.1, pulse 60, Resp. normal. Patient lay bent on left side, and refused to be moved; head turned to right, neck rigid, every movement painful. He did not want to sit up, but if placed in a sitting posture, he held head rigid backward and to right. Eyeballs turned to right and fixed, left being fixed a little higher. With some effort and with twitchings he could turn the eyes fully to the left, but in a few seconds they slowly returned. Nystagmus upon looking upward. Proptosis of left eye, the space between lids widened, closing of lids not complete unless both eyes were closed with much effort. Pupils normal; the left papilla showing plainly neuritis optica, while right seemed normal. No paresis or disturbances of touch, reflexes and spinetors were normal. Sight somewhat poor.

7-II—Condition the same; temperature subnormal; left optic neuritis more marked, and shortly respiration became Cheyne-Stokes in type.

8-II.—Increasing sleepiness. Trephining and emptying of a nearly median abscess containing several drachms of pus.

Of course another case like this would not be exactly like the foregoing. Place the following as premonitory conditions and we complete the picture and have many similar cases: (premonitory) an old otorrhea with sudden cessation, followed by severe pain in ear and occiput of same side, or general brain symptoms with vomiting and constipation, more or less fever with slowing of pulse, or there may be trouble in walking or trismus.

B—Group with pronounced general brain symptoms, with few and uncertain local symptoms.

KOCH—Female, age 20, chronic right-sided otorrhea; had for some days headache and vomiting, general malaise and took to bed.

31-VIII-92—Well nourished patient, with diffuse headaches. She looked tired, answered unwillingly and in monosyllables, but sensibly and correctly. At times she began a syllable without finishing it. Severe vomiting with little appetite, constipated for the last eight days in spite of cathartics. Temp. and pulse normal. Neck somewhat rigid and right eye showed a small degree of choked disc. Right pupil wider than left, but reacted to light and distance. Chronic right-sided otitis media with polypi and sinking of the superior wall of the auditory canal. Mastoid normal.

2-IX—Condition the same, but neck not so rigid while the choked disc of the right side was not so clearly to be made out. Mastoid was opened, exposing posterior-fossa, dura and sinus intact.

3-IX—Headache still, otherwise no change, somewhat nervous and upset.

5-IX—Became more tired and more sleepy, expressionless face, tendency to sleep, vomiting and constipation continues; rigidity of neck seemed to have disappeared.

10-IX—Condition unchanged; temperature and pulse normal.

12-IX—Early. Suddenly unconscious, stertor, death in half an hour. Abscess (size of a pigeon's egg), with membrane in intact surroundings, situated in anterior border and lower surface of right cerebellar hemisphere.

This type is present in many variable forms. In these cases the chiseling of mastoid is an important aid in diagnosis. All the symptoms first show their true value when the trephining shows a healthy dura and sinus, or show that they are not etiological factors in the case. At times also the chiseling exposes the carious destruction and shows us in what direction the abscess is probably to be found.

If we happen to be dealing with a left-sided otitis the diagnosis of cerebellar abscess becomes more certain if crossed pareses and aphasic-disturbance are wanting in the course of long observation.

C—Group with more or less pronounced brain symptoms in which diagnosis is essentially surgical.

MACWEN—Man, age 38, became ill 15-XI-91 with otitis media purulenta acuta of right side, and since had pain in right ear, pain in head and neck on right side. He would recuperate at times, but during the last few days pain became worse.

13-II-92—Conscious, pain over right ear, but principally behind the ear and in neck of right side. Pain on touch over the jugularis internus and over the apex of triangle of right side. Tem. 37.2, pulse 55, mild neuritis optica (more marked on right side). Lungs healthy. Opened into mastoid and fossa sigmoidea which was filled with granulations. In the region of sinus there was a mass of granulations; after scraping these from dura, a small fistula was seen on the inner side of the sinus exuding a drop of pus. Upon splitting the dura evacuated 12 ccm. of pus. Sinus was thrombosed and was not opened. Result, recovery.

In many cases the general brain symptoms are even more marked; or in some cases a single local symptom is predominant in the picture from the beginning, and leads us to suspect a cerebellar abscess. The finding of a fistula, however, gives certainty to the diagnosis.

In 19 cases in which we recall how the diagnosis was made, and how the operators were led to open into the abscess, we find that in 7 cases a dural fistula assisted in finding the abscess. In 4 cases, owing to local brain symptoms, the abscess was sought for in cerebellum and found. In the remaining cases the temporal lobe was opened and then the cerebellar because the general brain symptoms were not very clear, or because the previous thorough opening of mastoid was neglected.

Concerning Differential Diagnosis.

The diagnosis from an extradural inflammation of the posterior fossa is, in all cases of the II group, impossible unless the Jansen symptom is present; namely, pain upon pressure at posterior border of mastoid. We can never exclude from the beginning a coincidence of abscess and extradural inflammation. The attempt to make a clinical differentiation is not of much significance to him who, in every case of intracranial disease following otitis media, pushes forward from mastoid into the cranium. If with this proceeding we find extradural pus and turn it out, it will develop in a few hours, or a few days at most, whether or not there is also a cerebellar abscess present, taking it for granted that the abscess will produce symptoms. If the dura is then found intact we at once explore the cerebellum. It is easily distinguished from sinus phlebitis in pronounced cases with chills, intermittent or remittent temperature, icterus, enlarged spleen, metastases and local disturbances in the course of the jugularis internus or at the apex of lateral triangle of neck. If the metastases are absent, if the fever is always at same height and moderate, and if chill is present only at beginning, followed by another chill or two, we may not be able to distinguish it from cases of group II. If, in such cases, we feel a hard swelling along the course of the jugularis internus it is more probably a thrombus, but we must not forget that lymphatic vessels and glands lie along the vein, and that they are occasionally swollen in diseases of the ear, and may mislead us. Thus they may be mistaken for a thrombus of the internal jugular, or they may conceal a thrombus. If on the other hand we have slowing of pulse it points more to an intracranial collection of pus.

Slowing of pulse is here an important symptom that has often made it possible to diagnose an abscess accompanying pronounced sinus phlebitis. Sinus thrombosis and cerebellar abscess are found together in one-half the cases, therefore it is well always to think of the one where the symptoms of the other are pronounced and predominant.

The practical value of the foregoing remarks must not be overrated. If there is doubt whether there is simple phlebitis or cerebellar abscess the next indication is to open the mastoid and expose the posterior fossa. If we find a phlebitis we treat it surgically, and watch to see if the general brain symptoms (excepting optic neuritis) disappear in the next few days. If they do not we explore the cerebellum, which we do immediately in those cases where the sinus is intact. In suspected cases we must limit our explorations to the sigmoid sinus, because the symptoms may also come from phlebitis of *bulbus venæ jugularis* or sinus petrosi which easily connect with the much affected superior petrosal.

It is difficult of diagnosis from meningitis whose most frequent and important variety is purulent. It is generally a basilar meningitis if it follows an ear affection, and spends its force mostly on that region which is also easily affected by the remote action of cerebellar abscess. Therefore symptoms of both may mingle and confuse. If the meningitis runs a course of several weeks and if the temperature is slightly or not febrile, if the headache is insignificant, and if consciousness and general health is not disturbed, and if the patient is about, all of which has happened, though rarely, it is difficult to make a differentiation; if, on the other hand, the abscess is quick acting, so that sopor appears in first week, there is fever, irritation symptoms, hyperesthesia, nocturnal delirium and retracted abdomen (this being especially noted in children), then can a differentiation become impossible. In the large majority of cases, however, the meningitis has a continued and high temperature, rapid pulse following a slow pulse, consciousness is affected, early rigidity of neck is very severe, pupils are irregular, there is an early irregular strabismus, and there is the picture of

symptoms due to a severe affection of the base of the brain and the spinal cord. Nevertheless, even in such a typical case, it may be hiding symptoms of abscess, which is annoying, as the latter could be quickly relieved. Abscess symptoms following otitis media acuta have not been noticed before the end of the second week.

For practical understanding these clinical thoughts are weighty and important. If we have opened the dura and found signs of purulent meningitis the patient is in no worse a condition, as he would have died any way if we had let him alone. On the other hand there are occasional cases where meningitis got well after opening dura. The earlier we open the dura from the affected ear the more chance have we to confine the meningitis to its origin. We can use antiseptics, among which iodoform in ether-alcohol is best, to maintain contact with the disease and possibly prevent cerebrospinal fluid, which goes to the wound in dura, from spreading the noxious matter to the arachnoid space until the proper adhesions have formed.

If we do not want to interfere with the meningitis because the operative treatment for this disease is not yet fully recognized by surgeons, we may puncture the dura and examine cerebrospinal fluid for round cells, etc., before we proceed. Of course it is supposed that we have opened the mastoid and exposed the posterior fossa, for which proceeding there is sufficient indication in these cases. Lately, to assist diagnosis, there is recommended the puncture of the spinal canal in the lumbar region as suggested by Quinke. I think this is superfluous because we can obtain the same information by carefully puncturing the dura, thereby also gaining puncture-fluid from the immediate neighborhood of the inflammation, this being only valuable for an early diagnosis. With Oppenheim I think lumbar puncture is of doubtful value, because it may be possible that it produce such a sudden and severe lowering of pressure of the cerebrospinal fluid as to lead to spontaneous bursting of a superficial abscess.

An interesting affection that is difficult to differentiate is meningitis serosa. There are two forms, (1) meningitis serosa corticalis and (2) m. s. ventricularis. The first may follow chronic otitis media as found at two autopsies.

CASE—Female, 63, old right-sided otorrhea, large papillomatous polypi in outer auditory canal, was taken into hospital April, 1883, because of severe earache and aural hemorrhages which had existed for several weeks. In the neighborhood of the ear there were several collections of pus, which were incised and healed. She was discharged on 13-VII-83 with several fistulæ. Early in Oct., 1883, pain and swelling reappeared near right ear; patient lost sleep; gait was at times staggering.

30-X-83—Again taken into hospital. Swelling behind mastoid, pressure here very painful, pains radiating toward temple and vertex. Temperature and pulse normal. Opening and evacuation of pus from region of antrum. After this pain and general condition was variable.

6-XI—Began to be somewhat soporific.

8-XI—Delirium at night, soporific by day, speech hesitating, right pupil smaller than left, reacting slowly to light.

9-11-XI—Changeable condition, browache.

12-XI—Marked hebetude, constant groaning.

14-XI—Consciousness changeable.

15-XI—Wholly unconscious. Several clonic spasms of the left lower extremity. Toward evening tonic spasm of left upper and lower extremities.

16-XI—Left-sided facial palsy, frequent respiration.

17-XI—Death in sopor.

AUTOPSY—Carious defects in sigmoid sulcus and at tegmen antri. Dura intact. Right sinus transversus is obliterated entirely to the bulbous venæ jugularis. Pia of convexity is greatly edematous, quite congested; basal pia is greatly infiltrated with watery material, especially at chiasma and its surroundings. The ventricle is not much distended, but contains quite a little clear fluid. There is nothing special at the ependyma. Brain substance normal, but rich in blood.

Meningitis ventricularis can form in connection with a severe caries of middle ear or inner ear as Levi has shown. The differentiation into cortical and ventricular meningitis is purely anatomical, and we have as yet no clinical diagnostic indications for distinction. Clinically we must at present be satisfied with a meningitis serosa ex otitide.

The symptom-complex of such a meningitis serosa shows also three cured cases in literature, which I mention on account of their importance and the newness of the subject:

Case IV. Case of Politzer,	} Recorded by Levi.
Case V. Third case of Kipp,	
Case VI. Case of Macewen.	

The remaining cases of Levi we can better add to the

class of meningeal irritation (in the reported case of Styx, syphilis is not excluded,) if we prefer at present to form a classification. Optic neuritis cannot serve as a criterion in distinguishing, as long as we know that a sinus thrombosis can develop with either, producing no symptoms or only a little general disturbance.

To these true cases of meningitis serosa we add 20 cases, in which it was combined with cerebellar abscess. The pathogenesis of these cases we have discussed.

The symptoms of meningitis serosa are very much like those of cerebellar abscess, and not infrequently almost identical. If we take the cases recorded by Quinke, and our six otic cases, we see a picture something like the following: General brain symptoms, headache, dizziness, vomiting and constipation, all generally well pronounced; pulse often slowed; temperature, as a rule, normal, and only exceptionally attacks of fever lasting a day or so. The majority of cases show optic neuritis; this disturbance is generally well marked, and at times reaches a high degree; however, it may be absent in some cases, or in some cases it appears, but remains insignificant. The patient is generally overtaken with sopor, is very restless, furious delirium, alternating with a condition of mental confusion; in one-half of the cases consciousness is not blurred and the apathetic sleepy condition, which is quite characteristic of cerebral abscess, has occasionally been reported.

It is noteworthy that patients with hydrocephalus internus and cerebellar abscess remain with clear consciousness for some time, often even to death, despite the fact that the illness may linger over several weeks.

(To be continued.)

CHOLESTEATOMA OF THE EAR.

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One of the most frequent complications of chronic sup-puration of the ear is cholesteatoma. Bezold found that it constituted 2.1 per cent. of the various ear diseases, and 1.5 per cent. of chronic suppuration. In operative cases, according to Reinhard, 29 per cent. were complicated with cholesteatoma. In fatal cases by intracranial complication, cholesteatoma existed in the proportion of 1:3, showing the importance of this subject.

Cholesteatoma of the ear is a roundish or oval body, varying in size from a poppy seed to a pigeon egg, having a shiny mother-of-pearl surface, and having a bluish-white or yellowish color. The covering or husk resembles skin in structure, but has no lymphatic or hair follicles, shows a plain rete Malpighii, whose papillæ dip deep into the connective tissue for variable distances. The cells of the apices gradually lose their roundness as they approach the surface, they become flattened and horny. These horny cells, which are polygonal, show no nucleus until stained with ammoniacal carmine solution.

These horny epithelii form lamillæ which stick together like the scales of an onion and form the body of the swelling, the various layers producing the pearly shiny coat.

The contents of the structure is usually a small kernel of matted pus, or a cheesy detritus of decomposed or dis-integrated epithelium. Between the lamillæ we find cholesteroline crystals, fat globules and often numerous micro-organisms. Very rarely were giant cells found. Blood and lymphatic vessels are entirely absent within.

The cholesteatoma may be situated in the external audi-

tory canal. Toynbee found it 18 times here. Some of these, however, co-existed with an aural suppuration, so that we could not entirely exclude their origin from middle ear. Some had led to well-marked destruction of bone, and also to fatal intracranial complications. Ordinary obstructive cerumenous collections are often only slightly to be distinguished from cholesteatoma (microscopically), especially by the pigmentation and the more wavy form of epithelial layers. Very old cerumenous collections show macroscopically in their outer layer, the pearly coat of the cholesteatoma, and like it can cause a disappearance of the auditory wall.

We should regard the following as a transition from cerumen to cholesteatoma, or even as cholesteatoma; namely, those masses in the auditory canal which are extremely difficult to remove, which resist the prolonged action of alkaline douches, and which can only be removed instrumentally and with pain. Lately Hessler has gathered 67 cases of epidermis-plugs from his practice, and thus wishes to confirm Toynbee's opinion that cholesteatomata have their origin in the auditory canal, while Schwartze seeks to establish for them an origin from the drum cavity. It seems we cannot make a sharp distinction between cerumen obturans and epidermis-plugs.

Habermann had a case of cholesteatoma co-existing with chronic otitis media. He found some small roundish outgrowths in region of the membrane, he found also in the segment of Rivinus a prolongation which had caused disappearance of the upper bony wall, and which reached to the tegmen tympani.

Cholesteatoma has been found at times in the substance of the membrane, not only in the mucous layer but also in the epidermal layer. Urbantschitsch observed, in three cases its development and disappearance by extension into the auditory canal, one case with otitis media and two cases without such.

Pathologists and ear specialists are not as yet agreed upon the origin and existence of cholesteatoma in the region of the middle ear.

Pathologists compare cholesteatomata of the ear with those of the pia and the skull bones, and classify them

amongst the tumors as hetero-plastic formations. Their origin is either from **split-up** embryonic cells, as in dermoids and atheroma, or from **throwing off** of the epidermis of the first branchial cleft (**branchiogenic** cystoma, Küster). Böttcher believes they originate from the epithelium of the aqueductus vestibuli. Virchow is not prepared to make an explanation.

Primary chslesteatomata of the petrous bone, as new growths, have rarely been observed. To the case of Lucae and the incomplete description of a case by Schwartze in his "Surgical Diseases," he (Schwartze) adds an observation entitled "Cholesteatoma verum squamæ ossis temporum," accompanied by suppuration as proven by the cicatrix in the thickened drum membrane; it had, however, left no trace of inflammation either in the drum cavity, the antrum or in the air cells.

Those aurists who do not entirely disbelieve the occurrence of primary cholesteatoma in the ear, even though rarely to be demonstrated, claim that by far the greater number that occur can be traced to previous suppuration; they account for epidermis in the tympanic cavity usually covered by cylindrical epithelium by a metaplasia of the epithelium (Wendt, von Tröltsch, Bezold, Politzer).

Wendt in one case was able to show the histologic origin as being from the endothelial layers of the trabeculæ of the membrana propria; he further sought for a cause in a change or transformation of the epithelium of the mucous lining of the middle ear, together with a desquamative inflammation. A similar occurrence Bezold traced to the mastoid, while Politzer ascribes their existence to cut-off glandular involutions of the mucous lining of the middle ear, in which, during the course of a middle ear inflammation, the mouth of the gland closes up and the epithelium in the new-formed cyst grows on and on.

Von Tröltsch believes that there is a formation of a kernel of thickened pus, which, by the pathologic irritation and pressure, the growing mass exerts upon the walls, in a peculiar manner absorbs and involves the superficial products of the epithelium. Von Tröltsch also pointed to the fact that there exists in the normal antrum mastoideum large flat giant cells, which resemble the horny plates of the outer skin.

Von Tröltzsch's theory is good in many ways, but does not hold good for those cases in which a central kernel of thickened pus is entirely wanting.

The metaplasia of cylindrical into pavement epithelium under the influence of chronic irritation is not of very rare occurrence, and Schuchhardt has demonstrated its occurrence in other organs of the body. It is of frequent occurrence in our district in obstructing ear-polypi, which extend into the external auditory canal. That it is not necessary to have a contiguous extension of the pavement cells, or an implantation of this flattened epithelium, has been shown in the observations of cholesteatoma in the bladder.

Habermann in his latest work has shown the fibers of a meso- and entodermal origin have the property of leading to "hornifying," and can fully "epidermize" themselves.

Leutert has lately called attention to the fact that trauma, such as by certain therapeutic measures, may assist in further development of an already existing cholesteatoma, and we must here think of a kind of transplantation of the epithelium. By injuring the skin, epithelial particles are torn away or loosened and transplanted upon the granulating surface where they grow; they are then shut in by further granulations and have a chance to grow into rounded formations.

The possibility of implantation of epithelium, in a case of trauma, was shown by Garre's observation in tumors upon the palmar surface of the hand in two cases; by means of an incised wound, epithelium was sunk into the hand and this grew into a shut sac. Kaufmann experimentally showed the "life-possibility" of epithelium thrown off or separated from the body. He placed some thrown-off epithelium into an incised wound on a cock's comb, and closed the wound. The epithelium grew to a tumor, which consisted of horny flattened epithelium.

The consideration of a similar possibility in the ear will be a great drawback to an extended use of Mangold's method of sowing epithelium for "epidermizing" exposed surfaces in the middle ear cavity.

Habermann first clinically observed the most frequent kind of transplantation, and proved histologically that it

was because of the epidermis continually growing inward into the tympanic cavity through some defect of the drum membrane.

Since the favorite situation of cholesteatoma is the atticus, and the epidermis so often gains an entrance through perforations in the *membrana flaccida* Shrapnelli, Bezold feels justified in connecting the higher perforations with cholesteatoma.

However, the epidermis may wander in through defects situated elsewhere in the drum membrane. Thus, Habermann saw a strip of epidermis several millimeters long, reaching over the handle of the hammer, across the niche of the oval window at the *canalis Fallopiæ* and through the aditus into the antrum. In another case he was able to find two entrance-openings, one in the middle and the other near the border of the drum membrane.

Politzer says that the epidermis may grow in, through defects in the lateral walls of the antrum mastoideum and this lead to formation of cholesteatoma.

I called attention to four observations of "artificial" cholesteatoma. An antral opening was kept patent by a leaden plug for the purpose of douching; the epidermis grew in and lead to cholesteatoma, where in earlier operations we always found pus.

The further details concerning the "wandering-in" of epidermis into the region of the middle ear, we imagine to be as follows: Owing to a long continued purulent inflammation of the mucous lining of the middle ear, its cylindrical epithelium is, to a great extent destroyed, leaving behind a suppurating surface which extends to the drum membrane and to the external auditory canal. As pavement epithelium has a greater power to resist the destructive action of pus, it easily extends in spots, either during the suppuration or after its disappearance, taking the place of the cylindrical epithelium, as this is less able to cope with and recover from the attack of inflammation. Scarcely any remedy has been left untouched in the effort to extirpate the *rete-Malpighii* in the middle ear; sharp curettes, caustics, etc., and only exceptionally do we succeed in replacing it by solid granulation tissue, which develops into connective tissue cicatrices. In such chronic

suppuration the cylindrical epithelium has not equal regenerative power, wherefore we frequently see superficial union of surfaces situated opposite to each other which, after healing, leave behind new-formed bands, membranes, or an extensive collection of connective tissue.

The simple invasion of the middle ear by the epidermis is not sufficient always to produce the formation of cholesteatoma. Nevertheless, we consider it desirable that the cavity should cover itself with epidermis, in partial or total defect of the drum membrane, as this resists better external harmful influences than does the mucous membrane, which too readily responds to such irritation by producing mucus and pus.

In this case it seldom happens that cholesteatomatous masses are formed. Besides the epidermizing of the middle ear, we must have certain other favorable influences. This may be (1) a difficulty in the throwing-off of the horny epithelium; (2) in an enclosed production of it (Haug).

There is no doubt that in the so-called "epidermized-tympanum," without cholesteatomatous formation, the superficial cell layers become horny and are thrown off; it is also known that the "thrown-off" horny cells are not re-absorbed by the epidermis. What, then, becomes of them?

With every hemorrhage in the outer layer of the drum membrane, and with every pigmentation of it, we can observe a wandering from umbo toward the periphery until they get into the sphere of influence of the chewing-movements of the lower jaw, and thus together with cerumen are forced outward. Bezold showed that there is a tendency for the epithelium of the external auditory canal and of the membrane to spread itself or extend at the surface, thus leading to the wandering. Therefore, in normal conditions the outer horny cells of the membrane and the outer canal have a tendency to be driven out of the canal; this, by means of the movements of the lower jaw, which acts upon the cartilaginous canal and tends to drive the cerumen and epithelium outward. Probably the hairs, which sometimes reach to the canal and which grow outward, facilitate the outward movement.

So can the horny cells formed in the tympanum reach the light of day. In one case of radical operation I was enabled to watch this slow wandering of the epidermal covering in the tympanum. The stapes was absent, and the fenestra ovalis was closed by a membrane, which had a dark blue appearance, owing to the shining through of the dark vestibule. Upon this dark vestibule a small triangular, calcareous or bony implantation stood strongly out. In the course of four months it had traveled 5 mm. downward, and was partly situated upon the lower border of the oval window.

Necessary conditions for this unnoticeable wandering are (1) a small amount of "thrown-off" cells; (2) a clear, unobstructed way. In the so-called dry epidermized cavity very few cells are thrown off because the irritation (for an increased production) is absent. We can, also, take for granted that in these cases there has been no such severe and extended destruction of the cylindrical cells, wherefore they (the cylindrical cells,) can more quickly regenerate, so that the epidermis, when it wanders in, finds very little exposed surface upon which it can lodge. Often the upper region of the tympanic cavity is shut off, owing to the retraction of the hammer and the adhesion of the drum membrane; the epidermizing, therefore, does not reach backward into the aditus, being held back by the numerous bands and new-formed membranes over which it seeks to travel. If there are crevices in these bands the epidermis may wander in and lead to formation of "daughter-cholesteatoma."

Sometimes the auditory canal is peculiarly shaped so that the action of the lower jaw upon the contents is interfered with, or possibly the hairs are more or less absent; the ordinary pushing out of the contents is interfered with, and we find a plug of cerumen and cells. In my opinion it is this anatomic deformity which is responsible for the existence of obstructing ceruminous plugs, and not the increased nor decreased production of ear-wax.

Therefore it seems to me that a hyperplasia or increased production of epithelium is not always necessary in every case of cholesteatoma. As soon as epidermis settles in

niches with narrow openings, its removal becomes more difficult. Haug has pointed out that the pushing in of the epidermis into a cavity produces an erection of the rows of cells, which form a wicket-like closure to the opening, thus forming an impediment to their own egress and to that of their off-spring.

An accumulation of horny cells suffices to produce what is the most marked action of cholesteatoma, namely, a destruction of bone. This is accomplished first by its pressure upon the periosteum, which in turn influences the nutrition in bone, or a thrombus in the bone-vessels of the haversian canals leads to a destruction of bone by affecting nutrition.

Siebenmann called attention to the fact that epithelial pearls, that is, concentrically formed, round "hangers-on" of the cholesteatoma, the so-called daughter-cholesteatoma are found nearly always where there is a growing petrous bone, *e. g.*, in young persons; these he considers purely passively forming fillings for the pneumatizing mastoid. I will mention an observation I lately made. In a case of cholesteatoma in a twelve year old boy I operated radically upon the attic and aditus. In several years there was no tendency to formation of lamellæ, only an occasional tubal tympanic catarrh. However I noticed a dark, bluish-gray tightly drawn membrane at a place where there was formerly a hard bony surface, and when touched it sounded like drum-membrane. One day the patient, who had grown considerably during the interval, came to me with a recurrent discharge from the ear; the membrane was displaced by a cavity about 1.5 cm. deep, which showed no tendency to fill up with granulations, but was being covered with epidermis. Where the middle ear is not exposed the cholesteatoma, owing to the slight opposition, would wander into such an opening. The daughter, just as watchful as the mother cholesteatoma, greatly accelerates the development of these since it affords new points of attack upon the bone.

Kirchner described the growing of a cholesteatomatous mass into the Haversian canal; this has not been otherwise observed.

Thus there may be, without any suspicious symptoms, great destruction of bone, the dura may be exposed, the sinus may be compressed, reddened and displaced, and at the operation we are surprised to find changes which required years for their development, yet the patient never perceptibly suffered. The change may go even so far that dura mater and brain are displaced or affected and the mass projects as a bulbous formation into the skull-opening. Should the formations extend in other directions it may lead into a sort of spontaneous healing, such as one not infrequently sees. The posterior osseous external canal wall is caused to disappear by the pressing mass, likewise the bony lateral wall of the tympanic cavity, the ossicles, even to the stirrup plate, are pushed out, and we find a large cavity, which is composed of auditory canal, tympanic-cavity, aditus ad antrum, from which cavity the cholesteatomatous masses more or less completely empty themselves through the auditory canal. The growing mass has now no opposing surface against which it must press to produce absorption of the bone and the process ceases. A similarly favorable result may be obtained where there is a breaking through of the lateral wall of the antrum mastoideum.

This destruction of bone is wanting, of course, where the cholesteatoma grows in a connective-tissue diverticulum. There is then a formation of sack-like cholesteatoma whose contents are of the usual composition, whose rete-layer is surrounded by a connective tissue coat, and in the other we find the normal cylindrical epithelium of the middle ear.

Where the cholesteatoma has an uncomplicated action the pressure causes the disappearance of bone, and there are formed roundish cavities, with smooth walls, lined by a thin coat of connective tissue upon which is situated the rete Malpighii, and over this the horny cells. Signs of inflammation are small celled infiltration, periostitis, and otitis with formation of osteoblasts; all of which signs may be absent in these cases.

In most cases of cholesteatoma we not only deal with an accumulation of epithelium, but also with an increased production of epithelium. The inflammatory irritation may appear with the first "wandering-in" of the epider-

mis, or later, settling upon or added to the epidermis. In the latter case we must imagine the presence of caries or influences of infection, such as impure bathing-water, the dropping of oil into the ear, a spot of granulations, etc., that is if these influences are present and exist for some time. The former smooth, shiny surface becomes cloudy, reddened, and covered with a smeary coat of thrown-off cells. There is an increased production of cells which are displaced and act as irritants, and the whole cholesteatomatous cavity may become filled with a nasty, ill-smelling, thick fluid, in which the single lamellæ may offer the only clue to the cause of the formation of the tumor. The character of odor bears no relationship to the severity of the case, as it is induced by harmless saprophytes. In a radical operation the wounds held together by plastic material heal primarily.

In other localities there is a possibility of drying-up, and after the irritation ceases a normal formation of cells; the possibility is, however, out of the question in a cavity enclosing a cholesteatoma. The skin masses swell up and are replaced, the underlying stratum becomes inflamed and then we have the appearance of the acute symptoms of cholesteatoma. The swollen and replaced masses are pressed upon by the increase of the products of inflammation and partly disappear through the entrance. If by this the contents are lessened the symptoms may disappear or abate for a time.

The inflammation is not limited to the surface; it may involve the deep layers such as the connective-tissue basement membrane, the periosteum and the bone. Then we find the signs of periostitis and otitis in small celled infiltration, formation of granulation tissue, osteoblasts with many nuclei, the disintegration and absorption of bone.

Pronounced necrosis and formation of sequestra are seldom found in connection with cholesteatoma, but there is frequent formation of polypi. The bone caries which accompanies cholesteatoma increases its dangerous qualities by leading to intracranial complications. The causes of the inflammation, after a long continued stay in the cholesteatomatous cavity, are somewhat mitigated in

their action, while for the same reason the saprophytes lose some of their virulence; then when the dura is reached we have formed a pachymeningitis externa and more or less developed extra-dural abscess. From dura the process may advance to formation of a brain abscess, sinus-thrombosis or to a diffuse purulent meningitis. The sequelæ may have various and peculiar combinations. Jansen mentions a case of cholesteatoma which seemed no different in its manifestations from any severe cholesteatomatous attack, but it led to a circumscribed brain-tuberculosis and a tubercular arachnitis following a perforating pachymeningitis. Sometimes the mass breaks into the inner ear, destroying the labyrinth and making it seem a continuation of the middle ear cavity. The disease may then involve the skull contents by entering through the porus acusticus internus and the aqueduct.

We must here describe a secondary change in bone, namely, osteosclerosis. On account of the chronic irritation the pneumatic cells and the marrow regions disappear, and the bone takes on a ivory, smooth consistency. Lemcke, Haug, Hartmann and others have repeatedly shown that this hardening takes place most frequently upon the lateral surfaces of the processus mastoideus; it is therefore not a protection against the further spreading of the inflammation, but must be looked upon as a dangerous complication, since it may prevent a breaking-through, which would be comparatively harmless, and thus favor the involvement of the inner ear and the skull contents.

Regarding age at which cholesteatoma have been observed we make a general statement: "It appears at all ages but somewhat more frequently in children than in older persons."

Regarding sex it has not been determined. Bezold thinks it is more prevalent in males.

Inasmuch as we do not know the etiology we will include scrofula. In scrofula we often have hyperplasia and inflammation of the nose, pharynx, etc., and these conditions favor the development of chronic suppuration, the cause of cholesteatoma.

It is now apparent from the foregoing statements that

cholesteatoma may attend every chronic suppuration.

The duration is various, it may be months or years.

We know, from the above, the termination of the disease. Cholesteatoma is a chronic disease. The suppuration had probably existed intermittently for some time. Coincident with the discharge there may have been pain in head, dizziness, vomiting, etc. This picture repeats itself unless properly treated until severe symptoms from inner ear or skull contents, or a pyemic fever drive the most stubborn person to seek aid; however, then it may be too late to operate. Often the formation of cholesteatoma affords no symptoms and we are first called to a case by the manifestations of a complication.

The general health, even in well-developed cholesteatoma, may be excellent. If the local symptoms exist for some time, such as purulent discharge, hemorrhages from polypi and granulations, headache, dizziness and vomiting, of course the general symptoms will soon suffer. The presence of headache, dizziness and vomiting does not necessarily point to an intracranial complication, but it is the strongest indication for a radical treatment.

Fever is not always present, even in a putrid broken down cholesteatoma with pus and involvement of bone. Subperiosteal abscesses and intracranial complications induce fever. Therefore when fever is present we must think of a complication. The epidermal coat, the sclerotic bone and the partly thrombosed vessels are illy adapted for the reception of septic matters.

Subjective noises may or may not be present, depending upon the situation and extent. Objective examinations yields the most variable results, depending upon the duration and locality of the disease.

In the neighborhood of the ear, in the mastoid region, we often find cicatrices in the bone and fistulæ, as also on the neck from suppurative lymphadenitis of otic origin. Often we can feel, at the anterior border of the sternomastoid, a string of bead-like chronically enlarged glands connected by thickened vessels. This may interfere with palpation of the diseased jugular; and because we have pain upon pressure, we may think that the disease has

spread to the sinus and jugular. If the jugular is really involved and nothing interferes with our palpating it we do not always find it sensitive or a hard cord. Sometimes there is an isolated diseased lymph-gland upon the processus mastoideus, which will interfere with examination for tenderness of the bone, or when purulent, it may impart fluctuation and we may take it for a rupture through the corticalis or a subperiosteal abscess. The hardening of the bony tissue of the outer wall of the mastoid (as above stated and described), and the eburnizing of the corticalis, may exclude tenderness upon pressure, and still there may be the greatest destruction within. Rarely, where the extent of the formation reaches to underneath the skin, we may get a feeling of elasticity instead of bone, at the mastoid. Paralysis of the facial, when present, may be due to secondary inflammation of that nerve or to a breaking through of the mass into the Fallopian canal, in which latter case it is permanent.

The auditory canal may appear normal, but usually it contains a peculiar ill-smelling, sweetish (smelling) pus, at times mixed with cholesteatomatous particles. Roundish pearls with layers point without doubt to a diagnosis; however, skin-like lamellæ may have their origin in the epidermis of the auditory canal, which has been stimulated to increased cell-formation by the stagnating pus, and before we can make a diagnosis we must trace the origin to the middle ear. Fistulæ are frequently present. The drum membrane may show all the changes which are observed in a chronic suppuration. Cholesteatoma are seldom found in that portion of the cavity which lies below the proc. brevis; this accounts for the fact that perforations or defects in the lower half of the membrane are of not so much import in these conditions. In rare cases a perforation in the membrane may fully cicatrize despite the existence of a middle-ear cholesteatoma.

Of special importance are the holes in the bony circumference of the drum membrane and including the so-called "high perforations," that is, the very fine fistulæ above the proc. brevis. Bezold goes too far when he classifies without exception, the high perforations under cholesteatoma, since these conditions may be occasioned by sup-

puration in the attic or by caries of the hammer. However, it is of greatest importance in diagnosis. Bezold, in 65 cases of high perforations, found and demonstrated epidermis in middle ear cavities in 44 cases.

The situation of the drum membrane defects at the rim favors the appearance of defects at the limbus or in the lateral tympanic wall.

Politizerization or catheterization aid materially in regard to the condition of the membrane. The attic may be filled with pus and cholesteatomatous masses, the membrane of Shrapnell ruptured, and a defect exists at the upper limbus and yet the normal blowing noise heard since the lower half of the cavity is completely shut off from the upper half.

The hearing tests where the lower part of the membrane and the ossicles are uninjured generally show signs of interference with sound conduction. Evidences of labyrinthine involvement, by functional tests, teaches us to hasten the radical operation, especially where dizziness exists.

A positive diagnosis is made only when we can demonstrate epithelial layers in the cavities of the middle ear, and that they are formed there.

As the examination of the patient does not always happen to take place when there is an epithelial layer to be seen in the middle ear, it will then greatly assist us in diagnosis to rinse the cavity with a tympanic canula after we have cleaned out epithelial remains from the canal and cavity. If the characteristic skin-particles are then brought out of the ear by this procedure, then it shows the presence of a cholesteatoma. The situation and size of the mass can only be determined by an extended operative exposure of the middle ear.

Examination with a sound shows the presence of a cholesteatoma only when it squeezes out of the middle ear some typical particles.

Prognosis: Without treatment the prognosis, both as to recovery and as to life, is doubtful; where a timely and a radical treatment is undertaken, prognosis is almost always good. The point of time, when danger arises, cannot be determined beforehand. However, fever, head-

ache, vertigo, vomiting and signs pointing to an involvement of the inner ear, indicate operation.

Therapeutics: Is local. We have several treatments: prophylactic, symptomatic and radical.

Prophylaxis is synonymous with the treatment of acute and chronic middle ear suppuration.

The symptomatic treatment consists in the healing up of the co-existing disease of mucous membrane and the bone, the removal of the cholesteatomatous masses and the prevention of their new formation. If the bone is sufficiently destroyed and at a favorable situation, so that we can view the cavity from the canal or from an opening behind the ear, it is then easy to remove the lamellæ by use of the pincette or scoop. In some cases we see a smooth shiny surface, reddened and partly excoriated, or partially covered with granulations. At first we use mild antiseptics, using iodoform or iodoform and boric acid (1:4) in severe cases; boric acid, salicyl-boric acid, the dropping of alcohol or boric acid and alcohol and brushing with a 1 per cent. to 5 per cent. solution of nitrate of silver. The hyperplasia is then easily controlled, and there is formed a smooth cavity, whose epidermis requires months or years to form new lamellæ, which we can then control as before.

In such cases an operative procedure would be of no use, since we introduce, with the newly implanted epidermis, also a new rete-Malpighii (a new matrix for formation of cholesteatoma). In no way are we sure that new lamellæ, new cholesteatoma will not form from some irritation at some time or other. I cannot say how the new method of Stacke will turn out, namely, implantation of periosteum and, upon this, skin.

In order to avoid certain harmful influences, as the entrance of moisture, it is recommended to make a water-tight tampon with vaseline and cotton and place it into the ear.

A convenient treatment for removing the masses and influencing the matrix may be applied or tried upon such cholesteatomata as those whose situation and shape do not permit of examination by the eye. For this purpose the tympanic or antrum canula is passed through some

defect or fistula in the membrane into the cavity in which we believe the new formation to exist; it is then fixed, and by means of copious douching we at first remove the mass and then inject or blow in the chosen remedies, depending on the nature of the drug. There is no doubt that by these methods of procedure we are able to clean up and keep dry for some time small undivided cavities with smooth walls.

This procedure can, at its best, give us no exact idea of the size and shape of the mass and its cavity; it does not tell us much about the branching or smaller cavities. It still conceals from us how much of the epidermal surface has been left untouched, and we may leave behind cavities shut off by resisting epidermis, or by connective tissue, or perhaps by a crust of some insufflated powder, and it may still be discharging, or it may contain a "pearl" that is quietly pursuing its bone-destroying course, possibly in the direction of the inner ear, the skull cavity or the blood vessels.

Besides this, the plan of treatment is such a great trial of perseverance to both patient and physician, that it is seldom possible. It means a daily douching of the canula for weeks or months, and, after all this trouble, in the majority of cases the otorrhea begins anew after months or years.

Symptomatic treatment, therefore, is available and reliable only where the cavity can be carefully inspected, that is, where there is total destruction of the lateral atticus wall and the bony posterior wall, or a broad fistula behind the ear, and in small isolated cholesteatoma situated in the anterior half of the upper segment of the tympanum, with absence of the lateral wall up to the tegmen tympani.

There are minor operations which form a connecting link between symptomatic and radical treatment, whose aim is to simplify the complicated shape of the cavity; thus, the excision of the drum membrane, together with the hammer and anvil, and the removal of the lateral bony tympanic wall and other bony projections. In rare cases we may accomplish cure by this method alone, and often where there is already a defect, it may be necessary

to make the entire cavity visible in order to lay bare the little side pockets and cavities.

If the cholesteatomatous cavities are not to be controlled by the eye, we should endeavor to make of them, if possible, a visible cavity. We accomplish this by a broad exposure of the region of the middle ear, and keep up such openings in their original size and form by the implantation of epidermis.

Free exposure of the middle ear region, that is, a joining of tympanum, the attic, aditus ad antrum and the antrum into one single cavity, has often been accomplished (Zaüfal, Wolf and Kuester); it has been but slightly in vogue on account of danger of stenosis in the auditory canal, behind which the disease may quietly progress. Those specialists who oppose this are those who are not satisfied "when the cotton is dry, after the patient has carried it in his ear for 24 hours."

In order to avoid this, Schwartze (through Wegener,) endeavored to make public a method whose object was to expose the antrum by a lip-like fistula behind the ear. This procedure, however, left standing the bony posterior wall, the aditus ad antrum and the lateral attic wall, thus obscuring the view.

To Stacke belongs the credit of relating his experience of having exposed all the middle ear cavities without harm, and these he kept visible, as we see them at the time of operation, and as they must be kept in order to be under our control.

After it became thoroughly established that we must have complete visibility during the epidermizing, there sprung up two methods; the one seeks to establish a large permanent opening behind the ear; in the other, a broad communication between antrum and canal by removal of the separating wall is considered sufficient.

I instituted a method which Körner modified slightly a year afterward. Here despite the primary closure of the wound behind the ear the whole cavity was easily seen, no diseased bone could become covered with thick skin and hide itself under pus and cholesteatoma. I, however, avoided the objectionable openings behind the ear, by sealing them plastically, where they are again operable according to my wish.

By all other methods skin is transplanted upon the bone in which the undiscovered disease-spots and cholesteatomatous discharges may remain undisturbed and which may, as in Leutert's cases, lead to recurrences.

By means of two horizontal cuts I form a flap out of the cutaneous posterior wall, I turn it outward and sew it from within on to the outer skin and periosteum, so that the lateral wall of the cavity, where the bone is absent, is clothed with epidermis from within. A necessary requirement for the visibility of the entire cavity is an extended removal of the posterior wall, together with an oblique removal of the posterior and most lateral part of the auditory canal toward the apex of the mastoid process.

Injury of the stapes and facialis can be avoided by careful operation.

The length of time for cure after a radical operation for cholesteatoma stands in inverse ratio to the extent of the formation; this is explained by the fact that a greater or lesser part of the cavity is already clothed with epidermis, and need not wait to be clothed with the newly implanted flap. Four to six weeks suffice for a complete healing. Pain after operation is usually no obstacle to a good after treatment.

Recurrences are possible in every kind of operation, as well in a chiseled canal behind the ear which is kept open as in a healed operative wound. The vaseline cotton tampons offer a certain protection against foreign substances (water, etc.), especially where there is no fistula behind the ear. A large opening behind the ear can not so easily be made water-tight, and other harmful substances may enter.

In several cases of involvement of both ears where I have healed cases (of about equal numbers), the one by closure and the other by keeping the wound open, I observed that the recurrences were more frequent in the open side than in the closed. In the open treatment it is often disturbing to have hairs growing into the cavity.

In all cases of dry cholesteatomatous cavities we have a source of infection in the tube, which we seldom can control. Catarrh of the tube and the rest of the mucous membrane in the tympanum are not always excluded in

operating, the increased production of mucous and possibly pus moistens the young skin and may lead to eczema, destruction of tissue, etc.

I have sought to combat this difficulty by not removing, when healthy, the hammer with its vascular plexus; this I did with the hope that it would be drawn by the tendon of the tensor tympani toward the inner tympanic wall and would shut off by a new formed membrane the anterior portion of the cavity from the tympanal tube mouth. Suppurations in the vicinity of the head of the malleus have compelled me to operate upon it later. In other cases the retracted malleus did not close the tube, but only the anterior part of the atticus. I never succeeded in closing up the tympanic tube mouth although I scraped that region regularly with a sharp spoon.

Nothing remains then for us to do but the following: unless in very severe cases to take full charge of the patient twice a year; in the intervals we seek to treat nasal troubles, etc., to take other prophylactic precautions against a possibility of catarrh of the cavity, etc. Where there is a constant tendency to relapse a climatic treatment often does definite good. We prefer country or mountain air, sea-air being moist must be avoided.

Regarding the ability to hear: where the middle ear is freely exposed, where the membrane, hammer, and anvil are removed, there is not necessarily an injury to the hearing ability. The improvement in hearing which often follows is supposed to be due to the removal of the foreign growth from the cavity, the healing of granulations and polypi, and the division of rigid adhesions.

Changes upon the stapes or round windows, as well as diseases of the labyrinth, are not influenced by our procedure. Generally the ability to hear remains unchanged or bettered, rarely getting worse. Therefore for these reasons I see no objection to a free exposure of the middle ear cavities.

SO-CALLED AUTOPHONY (THAT IS, PATHOLOGIC RESONANCE OF ONE'S OWN VOICE).

BY DR. G. BRUNNER,

ZURICH, 1897.

(Translated and Abridged by H. A. ALDERTON, of Brooklyn.)

By autophony (or tympanophony) we understand a disturbing resonance of one's own voice (breathing or circulation sounds) which has its origin in an abnormal patency of the eustachian tube. The tube is not an open canal, but has a valve-like action due to the influence of muscular motion; normally the tube is slightly closed, in such a manner that it opens more easily toward the pharynx. The valve-like closure takes place in the pharyngeal part of the tube, behind the tubal mouth; thus there are conditions in which the soft membranous tubal-wall presses against the cartilaginous median part and after every opening of the slit returns to a state of closure. Under the mucous membrane of the membranous portion there is a fatty cushion, as well as folds in the membrane, both of which may be of importance in the closure. We shall see in the following description of cases, that in autophony, this condition of equilibrium is disturbed, inasmuch as the tubal cleft near its opening is not closed, or in milder cases, the closure is altogether too imperfect (*labiler*).

There is no doubt that in a case of patency of the tube the voice assumes a crashing, disagreeable, resounding tone. For this reason alone must the tube generally be closed, but there are other reasons. Mach and Kissel have drawn attention to the fact that the simultaneous transmission of sound waves from the outside inward lessens the effects of interference on the membrana tympani. Generally no noise finds its way through the tube; when sounding bodies (such as the tuning fork) are introduced through the mouth and approach the ostium tubæ the tone becomes weaker and weaker the deeper we go in. Even our own voice reaches the tympanum by means of the external ear.

As already noted, in autophony, not only does the voice have this hollow crashing resonance which seems to vibrate within the head or ear, but a corresponding sound in the diseased ear accompanies respiration and the pulse. These phenomena can also be observed objectively with the aid of the auscultation tube, and better so where the autophony is one-sided, as it usually is. The voice resonance is strongest with the nasals *m* and *n*, which we have also called resonants. These tones are produced by diverting the expiration current from the mouth, through the nose, thus inducing vibration through the naso-pharyngeal space and in the nasal-cavities. This shows how in these sounds there is a special tendency for vibrations to be carried up the tube.

The bursting trumpet-like tone I account for in the changed resonance surroundings or circumstances; in the ordinary manner we have transmissions, resonance is carefully omitted, but there is a different condition of affairs when the vibration wave goes through the tube into the drum cavity, because the enclosed air of the middle ear with its resounding walls is easily set in vibration.

Autophony generally appears only at intervals and can generally be more or less driven away by various manipulations; it disappears almost always upon lying down, or by bending the head forward or almost always after meals (digestive congestion), also by Valsalva's method (i. e., by swallowing with the nose closed), by which the air is rarefied in the naso-pharynx and tube, and the walls of the tube are brought closer together. All these procedures act against the opening of the tubal cleft. The same effect is accomplished by irritating applications to the tube by means of the catheter ($\frac{1}{4}$ - $\frac{1}{2}$ per cent. solution of sulphate of zinc) or by nasal douching.

That autophony appears where the tube is open has been proven clinically and experimentally by Poorten and Flemming.

Does obstruction of tube also produce autophony?

Some authors, thus Urbantschitsch, assert: "Autophony occurs with closed as well as open conditions of the tube and may be caused by plugging up or stoppage of the outer auditory canal."

I cannot agree with this. Regarding voice-resonance in stoppage of the external auditory canal, we must admit that in these cases one's own voice has a changed sound, but it is only in a mild degree and is not to be compared with and not to be mistaken for a true autophony. It is more difficult to answer the question whether the obstruction, i. e., a complete closure of the tube, may produce autophony. Autophony appears not infrequently in the course of catarrh of the middle ear and tube (acute and chronic) in which we would expect a strengthening of the closure and not a weakening; in some cases I found it difficult to introduce air into the ear even with the catheter.

We should think twice before adding obstruction of the tube as a cause of autophony, because even if a few cases seem to point to such a cause, there are many and more important arguments against this. We should remember that autophony is in no way a regular accompaniment of tubal obstruction.

I have looked up the literature regarding cases of obliteration or deformity of the tube, and among the few observed cases there was great difficulty of hearing and subjective noises, but no autophony; such were the symptoms also in an interesting case of O. Wolff, in which a bullet became fixed and fully occluded the tube and produced a drawing in of the tympanum.

Therefore, clinical facts show us that stoppage of the tube alone is not sufficient to produce autophony, and that usually other factors are necessary. What are these factors?

We have seen above that generally in the lower part of the tube there is produced a not very tight closure due to a clinging of the soft lateral walls to the cartilaginous wall and this is the state of equilibrium to which the tubal cleft returns after being opened, due to a general pressure in the tissues. Suppose there is a catarrhal process in the tube, and suppose the membranous wall becomes more rigid and stiff, so that after the cleft is open there is never an entire sinking back or return of the walls. When the voice has once found its way into the lower third of the tube, it will probably produce a resonance in the ear, even

if the rest of the canal is obstructed. We would have here autophony, not because of obstruction but in spite of it.

Recapitulation.

Autophony depends on deficient closure in the pharyngeal portion of the tube.

A simultaneous difficulty of penetration in the upper part of the tube must not be taken as a cause of autophony, since clinical experience teaches us (1) that in gaping of the tube (as by a diphtheritic cicatrix at the ostium) there is severe autophony, and (2) that a perfect closure or sealing of the tube alone does not produce autophony.

I do not believe that obstruction of the external auditory canal can of itself produce a true autophony.

We must also admit that we have still something to learn regarding what the conditions are that may produce resonance.

In nearly all cases we dealt with patients (adults) who had suffered for some time with chronic nasal catarrh and in this relation we could possibly speak of a catarrhal autophony, in contradistinction to that produced by cicatricial contractions and possibly by muscle-spasms in the tube, etc.

The more direct causes of this catarrhal autophony we can only surmise and they may well be of various kinds: stiffness, rigidity or too great dryness of the membranous wall which is usually moist and soft; this would prevent the membranous wall from clinging or adhering to the cartilaginous, thereby interfering with a spontaneous closure after opening. In severe cases it seems the pharyngeal portion is almost always open. We must, of course, also think of the possibility of atrophic processes. We do not know how much importance spasm of the tubal muscles is.

Diagnosis generally offers no difficulties. Generally the voice resonance is also objectively perceptible and the more so as it is generally one-sided. We should also observe the increased autophony with *m* and *n* and the result of auscultation with *airdouche* (absence of the opening blowing sound), disappearance of the trouble by reclining or bending forward, the favorable action of the

digestive-congestion; also snuffing in of air with closed mouth, negative Valsalva's method, etc., etc.; also the results of the use of irritating powders in the tube and nose.

We should also remember that the resonance involves only one's own voice and respiration and not noises and tones coming from without.

Prognosis—Is different and depends on causative factors (catarrh, cicatrices, etc.). In my career prognosis was good except one case which lasted three months.

Therapeutics—Anticatarrhal treatment when necessary. Treat naso-pharynx, inject zinc sulphate solution into the tube, etc.

Of course we can see that therapeutics depends on causation.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

A New Combination Chart For the Examination of School Children's Eyes and Ears by Teachers.

361. ALLPORT, F. (*Journ. American Med. Ass'n*, June 25, 1898.) A description of the method of examining school children adopted by the Chicago Board of Education.

[This or a similar plan should be used in all schools, in order to give children with defective eyesight or hearing the advantage of early attention and to prevent them from being handicapped by their defects.] *Scheppepegrell.*

Middle Ear Ossicle Forceps.

362. ALLPORT, FRANK. (*Laryngoscope*, July, 1898.) The ends of the forceps turn gradually upward and become expanded into two semi-balls which come firmly together upon pressure with the fingers at the handle, and expand six mm. upon removing the pressure. *Loeb.*

Mastoiditis.

363. BANE, W. C. (*Medical News*, March 12, 1898.) A careful review of the diagnosis and prognosis of mastoiditis and of the radical operation for its cure. The report of two cases is given, showing fatal complications. The brain had been involved through the tympanic vault in both cases, which proved fatal. The autopsy showed extensive meningitis. *Scheppepegrell.*

The Active Constituents of Cod Liver Oil in Chronic Adenitis with Otorrhea.

364. BOTELER, W. C. (*St. Louis Med. Era*, April, 1898.) The patient had suffered for several years from marked enlargement of the lymphatic glands of the neck, involving the mastoid, carotid, submaxillary, and the superficial and cervical groups on each side. There was a purulent discharge from the left ear. In addition to

local treatment, cod liver oil was administered with excellent results.

Scheppepegrell.

Note on a Case of Hemorrhage from the Ear.

365. BROWN, W. H. (*Lancet*, June 4, 1898.) A child aged five years developed a sudden hemorrhage from the right ear, the amount of blood lost being very great. It was arrested by iodoform packing but recurred to such an extent that the child became dangerously anemic.

An examination showed a swelling which passed the right tonsil over toward the median line. It did not pulsate. Believing that the hemorrhage was from the internal carotid, the common carotid was ligated at the point of election, which resulted in a complete recovery.

Scheppepegrell.

Extraordinary Case of Horse-bite—The External Ear Bitten off and Successfully Replaced.

366. BROWN, W. J. (*Lancet*, June 4, 1898.) The greater portion of the pinna, together with a semicircular flap of an inch radius from behind the ear, was bitten off, in the case of a boy aet. 14 years, leaving only the tragus with a quarter of an inch of the helix and lobule. Though the portion which had been bitten away was in a very unsatisfactory condition, and as the usual surgical instruments were not at hand, the dismembered portion was attached by the use of common needles and thread. A successful result was accomplished. *Loeb.*

Facial Paralysis Occurring in the Course of Middle-Ear Disease.

367. CLARKE, J. J. (*Laryngoscope*, April, 1898.) From a clinical standpoint the cases may be grouped in three categories: (1) Cases arising in the course of acute middle-ear suppuration; (2) in chronic middle-ear disease either from inflammatory effusion within the aqueduct of Fallopius or from ulcerative damage of the nerve; (3) following mastoid operations due to inflammation or to injury of the nerve. Illustrative cases are reported.

Loeb.

Three Cases of Brain Abscess Following Otitis Media.

368. COE, Spokane, Wash. (*Archives of Otology*, Vol. XXVII, No. 3.)

CASE I. A man, aged 28, who some months previous had

suffered from severe pain in the left ear, which after one week was followed by a free discharge, chills, high fever and vomiting. On examination there was seen pus coming from the middle ear and granulations springing from the upper tympanic wall. His general condition was bad. He had daily elevation of temperature, malaise and anorexia. Tenderness developed over the mastoid and there was redness along the sterno-cleido-mastoid muscle. The mastoid was opened and no pus found. The next morning, however, there appeared a free discharge of pus from the mastoid wound. For four or five days progress was uneventful, then the temperature ran up to 103.5° F. with pain in the head and the ear became very severe. Next day patient had a chill and temperature reached 105.5° F. Pus formed beneath the sterno-cleido-mastoid muscle and was drained by an opening through the body of that muscle. After an interval of ten days it was noticed that patient's right leg was not moved as freely as the left. The patient groaned, cried aloud and complained of intense headache in the left frontal and temporal regions. Temperature was normal, pulse 60 to 70 and full. The paralysis of the leg became complete and extended to the right arm, hand and right side of the face. There was hesitancy in speech and amnesic aphasia. The patient lay in a semi-stupor. Operation was again done and a button of bone removed, one and a half inches above and behind the external auditory meatus. The dura was opened and a probe passed in all directions for a distance of two and a half inches between the dura and the brain, but without result. For the next ten days the condition was unchanged except that he made no complaint of pain. He had complete loss of control of the rectal and vesical sphincter muscles. On the eleventh day he seemed brighter and during the next few days his appetite improved, the paralysis disappeared and he was soon up and walking about in his usual state of health except that he had a slight amount of facial paralysis. Examination showed the ear to be perfectly dry.

The patient passed out of observation for a period of two months when he returned complaining of intense pain in the head, anorexia and weakness. His condition grew

rapidly worse, stupor deepened into coma and finally death.

On autopsy the dura was found thickened and firmly adherent to the motor areas of the cortex. On section of the left hemisphere an abscess was found occupying the lower and central portion of the frontal lobe.

Case II. A man, aged 46, who for three weeks had suffered from acute otitis media. There was a history of previous attacks of otitis media, and cicatrices showed where a double mastoid operation had been performed in childhood. There was intense pain over the left side of the head and slight hesitancy in speech. Although there was no decided tenderness over the mastoid, it was determined to open it, and there was found almost complete obliteration of the antrum and mastoid cells. The middle ear was cleansed of a small amount of ichorous pus. The operation was followed by no improvement. The temperature was normal and pulse 60 to 70.

After waiting a few days and a diagnosis of subdural abscess having been made, a button of bone one inch in diameter was removed from a point the center of which was one inch above and behind the external auditory meatus. The dura had a normal appearance. It was incised and a probe passed in all directions with negative results. The patient's return to consciousness was followed by extreme stupor, deepening into absolute coma and death.

On autopsy a small abscess cavity was found in the temporo-sphenoidal lobe, about one inch below the surface. From this pus cavity minute sinuses extended into the roof of the tympanum.

Case III. A woman, aged 28, some weeks before suffered from acute suppurative otitis media, and on the discharge of pus she was relieved from pain. Later she had severe headache, some dizziness and facial paralysis developed on the right side.

On examination the external auditory canal was swollen and tender, and contained several polypi. Temperature 100.4° F., pulse 108. Some tenderness over the mastoid. Removal of the polypi revealed a partially destroyed Mt. and dead bone.

The condition being very little improved, the mastoid was opened and considerable pus and granulation tissue was found in the antrum. The intense head pain continued and stupor supervened, pulse was 60 to 80, with normal temperature. An intracranial opening was determined on, but the patient sank before it could be carried out.

On autopsy pus was seen to exude from the internal auditory canal. The outer surface of the petrous portion of the temporal bone had a normal appearance, but when the outer casing was removed the entire inner structure was disorganized.

The inner tympanic wall and semi-circular walls were destroyed. There was an abscess cavity in the right cerebellum, containing about two ounces of pus.

Campbell.

The Artificial Membrana Tympani.

369. CHEATLE, A. H. (*Laryngoscope*, March, 1898.) While the results in the great majority of instances are negative, some improvement may be obtained by the use of an artificial ear drum in chronic middle ear suppuration, where the discharge is light or has ceased, and in which either a large portion of the membrane below the short process of the malleus has been lost, or the whole of the incus or the descending articular process has been destroyed by caries. The following rules should be enforced:

(1) At first the period for which it is worn should be short and then gradually increased; (2) it should always be removed at night, the ear being gently syringed after removal and before introduction with a trustworthy, but not irritating antiseptic solution; (3) if pain, bleeding, increase of discharge, or any complication arises, it should be left out at once, to be gradually worn again after such complications have subsided.

Loeb.

Contribution to the Study of the Acquired and Congenital Occlusions of the Auditory Canal.

370. CONTRADE. (*Annales des Maladies de l'Oreille du Nez. et du Phar.*, No. 7, July, 1898.) The author has before published articles on this subject. His idea was that in acquired occlusion there is always a small opening left. The first case contradicts this. A man of 32 in washing

a barrel got some caustic soda in his right external meatus. The ear after this discharged pus until June, when it stopped, and pus began running down the pharynx. In December he came for treatment, the canal was found closed and the hearing bad. A crucial incision and packing produced a medium large meatus.

The second case was a girl whose meatus closed at five years in the course of a chronic suppuration. The occlusion could not be overcome; it was bony.

The third case, a girl of 17, suffered from suppuration up to her 13th year, when it stopped. The occlusion was complete, but the girl did not allow an operation.

The next patient was a man of 29, with congenital occlusion, which he did not permit to be operated on. The indications for the operation are only exceptionally absolute ones.

Holinger.

An Additional Note on the Treatment of Strictures of the Eustachian Tube by Electrolysis.

371. DUEL, A. B. (*Laryngoscope*, February, 1898.) While it was suggested in a previous paper that the method of carrying the negative pole of the galvanic current directly into the tympanum might be of value in cases of the sclerotic variety of catarrhal middle ear disease, even when the tube was very patent, it was not for such cases that the procedure was advocated. Relief can be promised in those cases where there is a decided narrowing or complete stenosis of the eustachian tube, in chronic tubal catarrh or in connection with catarrhal otitis media. Inconsiderable or no relief is to be expected where there is distinct evidence of labyrinthine disease, or in residual purulent cases. A reliable milliamperemeter is necessary, as well as a rheostat and the use of a voltmeter will be found of advantage. The position of the eustachian orifice should be ascertained before hand, by means of a silver catheter, and after being properly molded it is best to be insulated by winding a narrow strip of rubber tissue around it. The bougies are now made of gold instead of steel. When the bougie has been passed up to the point of constriction it is best to turn on the milliamperes, and hold the bougie against the constriction for one minute. If the constriction is felt to soften up,

another milliampere should be turned on for another minute, and so on for five if necessary. If dizziness appears a lower current must be continued for a longer time. If the constriction resists after five minutes it is best to desist for a week, and then to attack with a smaller bougie.

Loeb.

Excision of the Ossicles for Chronic Purulent Otitis Media.

372. FRIEDENWALD, H. (*Medical Record*, June 11, 1898.)
A report of a case with a satisfactory result.

Scheppegrell.

A Case of Chronic Suppurative Otitis Media, Followed by Cerebral Abscess and Suppurative Meningitis.

373. DENCH. (*Archives of Otology*, Vol. XXVII, No. 3.)
A man, aged 36, who for a number of years had been subject to repeated attacks of severe headache, confined to the left side of the head, came with a history of having suffered intense pain in the left side of the head for two and a half weeks. On examination both Mt were found destroyed, and there was a small amount of fetid pus in either tympanum. There was no tenderness over the mastoid, or along the jugular. There was slight tenderness on percussion over the left temporo-sphenoidal region. Temperature was 102° F.

The mastoid was opened and found sclerotic. Cholesteatomatous material was removed, both from the antrum and the tympanic vault. The antrum and tympanic vault were made continuous with the external auditory meatus by the Stacke-Schwartz method. The posterior wall of the membranous external auditory canal was split longitudinally, thus making two flaps which could be pushed into the bony cavity.

In spite of the operation the temperature rose to 103.8° F., and within 24 hours there developed symptoms of amnesic aphasia. It was now determined to enter the cranial cavity, and the original incision was carried forward to the external angular process of the frontal bone, and the cranium opened about one inch above the external auditory canal. The meninges were found intensely congested and somewhat thickened. On aspiration a little turbid fluid was withdrawn, and on freely incising the temporo-sphenoidal lobe a large amount of broken-down

brain tissue was discharged from a large abscess cavity. Gauze drainage was employed; and on recovering from the anesthesia the aphasia disappeared. The temperature fell 1.5° F. A few hours later the patient had a chill, and the temperature began to rise slowly until finally reached 106° F. Death followed on the fourth day, after opening the tempero-sphenoidal abscess.

The autopsy revealed a purulent leptomeningitis of the entire left side of the cranium. No other abscess was found in any portion of the brain except that described in the left tempero-sphenoidal lobe. The left lateral sinus contained a rather firm clot, not extending below the sigmoid portion. There was a recent clot in the torcular and in the lateral sinus of the opposite side. There was no perforation of the roof of the tympanum; but from the thickening of the overlying dura, it seemed probable that infection had taken place through the communicating veins.

Campbell.

Affections of the Ear in Gouty People.

374. GELLE. (*Medical Age*, May 25, 1898.) The author attempts to prove that gouty people have a predisposition to ear affections. He concludes with the following remarks:

1. In adults or children predisposed to, or suffering from, gout the ear may be affected with acute suppurative inflammation. This otitis is very intractable.

2. The gouty otitis media may start from simple congestion or infection from the naso-pharynx; the congestion may be in the attic or in the ossicles. Later on, infiltration with lime salts and retraction of the membrane are observed.

3. Very often the catarrhal otitis announces the attack of gout and disappears with its onset.

4. The vertigo of gouty people is almost always due to ear affection.

Scheppegevell.

A Rapid Method of Making Graphic Charts of Hearing Power for Various Tones.

375. GRANT, DUNDAS. (*Laryngoscope*, February, 1898.) Hartmann advised the use of five forks C (128), C' (256), C'' (512), C''' (1024), C'''' (2048). The length of time in seconds that each fork is heard by a healthy ear, after

the best stroke is to be noted as normal of 100 per cent. The per cent. of hearing in abnormal cases is to be determined by multiplying the time in seconds, during which the fork is heard, by 100 and dividing by the normal time in seconds.

The writer advises the use of three lower forks, one, two and three octaves below C (128), and one an octave higher than C^{'''} (2048). He arranges his chart as follows:

	C ₂	C ₁	C	c	c ¹	c ²	c ³	c ⁴	c ⁵
90									
80									
70									
60									
50									
40									
30									
20									
10									

Each square is colored upward in accordance with the patient's ability to hear, and if perfectly normal, the entire chart will be colored.

The writer has also arranged a table of percentages for his own tuning forks, which simplifies the plan of obtaining the percentage.

Loeb.

Advance in Oral Instruction of the Deaf in Illinois.

376. JORDAN, J. C. (*Medical News*, June 4, 1898.) The author, who is superintendent of the Illinois Deaf and Dumb Institute at Jacksonville, reports the progress in respect to the institution of the deaf and dumb in the State, and offers the following remarks:

A notable development in the progress during the past few years has been the advancement made both in the quality and extent of oral instruction. The attitude of the State toward the instruction of the deaf in speech

and lip-reading has always been liberal and progressive. Ten years ago only 35 per cent. of the pupils were receiving oral instruction. At present 55 per cent. are in the oral department, in which speech and lip-reading are the ordinary means of communication, or are receiving special instruction in this art every school day.

Scheppegregell.

Periauricular Abscess After Circumscribed External Otitis.

377. LANNOIS, LYON. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, No. 24, June 11, 1898.) It is not very rare that a periauricular abscess is mistaken for a mastoiditis. The author, however, cites several instances where mastoid operations were intended and even commenced before the real condition was recognized. Leutert described similar cases in the *Arch. f. Ohrenhk.* Even a Bezold mastoiditis, with infiltration of the tissues of the neck, may be simulated. Careful examination will clear matters.

Holinger.

Rupture of the Ear Drum Not Necessarily Incurable.

378. LAUTENBACH, L. J. (*Medical News*, May 28, 1898.) Under ordinary conditions the ear drum has considerable recuperative power, and even after removal of the ossicles a new membrane may be formed.

Scheppegregell.

Some Unusual Causes of Otalgia.

379. LESTER, J. C., and GOMEZ, V., (*Laryngoscope*, April, 1898). A case of otalgia due to neurasthenia is reported and the following are announced as unusual causes of the condition: hysteria, the presence of an epithelial scale resting upon the drum membrane or upon the walls of the canal, the introduction of certain oleaginous substances which decompose, certain drugs, such as salicylic acid, quinine and iodides, malarial intoxication, nasal stenosis, neoplasm in or near the ear, anemia, luetic dyscrasia, typhoid fever and throat affections.

Loeb.

Cases of Cerebral Abscess.

380. MARSH, F. (*British Med. Journal*, April 30, 1898.) In complicated cases, which constitute by far the majority, a diagnosis is very difficult, and sometimes this is very difficult, and sometimes this is impossible without exploratory operation. The following cases are reported:

1st and 2d cases, chronic suppurative otitis media, abscess of temporo-sphenoidal lobe, operation, recovery.

3d case, chronic suppurative otitis media, mastoid abscess, temporo-sphenoidal abscess, operation, recovery.

4th case, chronic suppurative otitis media, mastoid abscess, temporo-sphenoidal abscess, meningitis, operation, death.

5th case, chronic suppurative otitis media, septic lateral sinus thrombosis, suppuration along course of internal jugular vein, secondary brain abscess, operation, death.

Scheppegrell.

Three Cases of Intracranial Abscess: The First two Cerebellar and Fatal (autopsis); The Third Subdural (recovery); With Remarks.

381. MCKERNON, New York. (*Archives of Otolaryngology*, Vol. XXVII, No. 3).

CASE I. There had been an intermittent discharge from both ears for eleven years, and for the past four years severe headaches on the right side, especially at the base of skull. The Mt. had been destroyed with the exception of a small portion in the posterior superior quadrant, which was bulging. Pressure over the upper third of the mastoid caused considerable pain. The bulging portion of the Mt. was incised, leeches applied over the mastoid and the auditory canal irrigated with bichloride solution. The ice coil was applied but the pain progressively increased. Temperature 101.2° F.; pulse 102. The mastoid was opened and the antrum found to contain a few drops of pus. Granulation tissue in the tympanic cavity was removed by curette. For five days after the operation the pain continued as bad as before. The temperature gradually rose to 104° F. The wound had an unhealthy look and on palpating with a probe softened bone tissue was found over the central portion of the lateral sinus. At one point the probe entered the sinus and its withdrawal was not followed by any flow of blood. A second operation was decided upon and the upper portion of the sinus was exposed for about one inch; the dura was incised and a large amount of pus and granulation tissue was removed, the curette was used freely and circulation restored above. This was controlled by packing iodoform gauze

against the sinus. The lower portion of the sinus was then uncovered as far as the jugular bulb, the dura incised and pus and granulation tissue similar to that found in the upper part were removed; the sinus was curetted and a free hemorrhage took place from below, which was controlled by packing iodoform gauze into the lumen of the vessel. The patient did not react well, she complained of most severe headache, vomiting at different times during the day and had retention of urine. The catheter was used, twelve ounces drawn which contained 2 per cent. of albumen. She became very restless and delirium set in. Temperature 105° F., pulse 154, respiration 38. The dressings were removed and the posterior dural wall of the lower half of the sinus showed a slight fulness. The dura at this point was opened and a grooved director was introduced downward and backward into the cerebellum for about two inches which liberated about one ounce of foul-smelling pus together with disorganized brain tissue. The cavity into the cerebellum was now enlarged sufficiently to admit the finger, was sponged and packed loosely with iodoform gauze. On account of the patient's weak condition active stimulation was needed to rally her. Counter-irritation over the kidneys was used and digitalis poultices kept up continuously. The urine withdrawn showed the percentage of albumen to be increasing and contained many casts. Coma supervened and just before death the temperature reached 107.4° F.

Upon autopsy no ante-mortem clot was found in any sinus of the dura, or any other intra-cranial involvement, except the two here mentioned.

CASE II. A man, aged 25, who for several years had been troubled with a discharge from both ears with occasional attacks of pain. Two weeks before coming under observation he had a severe pain at night in the right ear, which lessened next day when the ear began to discharge a thin white-colored fluid. On the 12th day after the pain began the discharge stopped, and was followed by severe pain in the ear and over the mastoid. For the past eight days he has been unable to sleep on account of the pain low down in the back of the head on the right side. Upon inspection a scanty discharge of

fetid gray pus is seen coming from the right auditory canal; there is bulging of the superior and anterior walls. The tissue over the mastoid were swollen and edematous. On the left side a profuse discharge of greenish pus was coming from the external auditory meatus. The Mt. was destroyed and dead bone could be detached on the posterior and inner walls of the tympanum. There was no mastoid tenderness on this side. The temperature was 98.2° F. His urine had a specific gravity of 1010 and contained one-third albumen by bulk. Operation was undertaken after explaining its gravity. The mastoid was soft and necrotic; the cells contained thick creamy pus and granulation tissue. In removing all of the diseased bone one and a quarter inches of the sigmoid sinus was uncovered from the bend downward. There was no pulsation in the dural wall but on aspiration fluid blood was withdrawn. He rallied well from the operation but on regaining consciousness he complained of pain in the wound region and low down on the right side of the occiput.

His kidneys secreted well but the percentage of albumen kept up. Later he became restless and nauseated. The temperature rose to 103.4° F.; pulse 138; respiration 16 per minute and shallow. The dressings were removed and the exposed sinus found bulging into the mastoid wound. He was again chloroformed and the sinus uncovered to the jugular bulb below and above as far back as the torcular and opened from end to end of the area, evacuating pus, clotted blood and granulation tissue. Free hemorrhage was established below and controlled by packing iodoform gauze into the bulb. By persistent use of the curette and probe the blood stream was established above, allowed to flow for a few seconds to wash away any septic material and controlled by packing gauze against the lumen of the vessel. After controlling the bleeding it was noticed that the dura of the posterior sinistral wall was bulging outward. The dura was slit at its most prominent part and a grooved director passed downward, backward and inward into the right lobe of the cerebellum for about two inches and upon being withdrawn was followed by oozing of fetid pus. On enlarging the

opening with the finger two ounces of pus was evacuated. The cavity was mopped out and lightly packed with iodoform gauze. After regaining consciousness he said he felt better, had no pain. Temperature 101.4° F.; pulse 140. But three ounces of urine were drawn and the albumen was increasing. A few hours later he became restless, then stupid and passed into coma; just before death he had a slight convulsion.

On autopsy no further intracranial involvement was found. The kidneys were in an advanced state of parenchymatous nephritis.

CASE III. A man, aged 30, who five weeks before contracted a severe cold and suffered from acute right middle ear suppuration; when the ear began to discharge pain ceased. After an interval of a few days the pain in the ear commenced again and this was followed by pain and tenderness over the mastoid of the same side. Pain was also pronounced over the right temple and backward over the side of the head to the occiput. Temperature was 102° F. On inspection a profuse purulent, yellowish discharge was seen coming from the external auditory meatus. The superior and posterior walls were bulging into the canal. A mass of granulation could be seen at the lower and anterior part of Mt. The mastoid was opened and dark gray colored pus with little odor found in the antrum. The necrotic bone was freely removed and the sinus exposed for one and a half inches downward toward the bulb from its bend.

Communication was established with the middle ear through the aditus. The bony wall separating the antrum from the middle cerebral fossa was softened and was removed with the curette. The exposed dura looked much darker than usual, so it was opened and a grooved director passed upward and forward between the dura and the brain in the middle fossa. Its withdrawal was followed by a discharge of pus from beneath the dura and on the opening being enlarged the cavity was drained of about four drachms of gray colored pus. Some softened bone at the junction of the superior and posterior auditory canal being removed an opening was found through the vault of the tympanum, showing where perforation had

taken place into the middle fossa. The patient rallied nicely. His temperature on the evening of the operation was 99° F.

Campbell.

On the Retro-Auricular Opening After the Radical Operation for Chronic Middle-Ear Suppuration.

382. PASSOW, Heidelberg. (*Archives of Otolaryngology*, Vol. XXVII, No. 3.) The writer after reviewing the indications and the object aimed at in the radical operation proceeds to describe his methods of procedure. The primary incision begins below, a little above the tip of the mastoid, about 2 cm. behind the insertion of the auricle and extends upward to about 1 cm. above the linea temporalis. The skin is dissected up to the auricle and the periosteum is now incised parallel with and close to the attachment of the auricle. The periosteum is stripped off the bone backward to the primary incision and down to the tip of the mastoid, and then cut away. The upper and posterior walls of the meatus are loosened and drawn forward. The entire field of operation is widely exposed and the middle ear can be entered by Schwartze's, Stacke's or Zaufal's method.

The external meatus, now, is split open as far as the cartilage of the auricle and by a second incision perpendicular to the first, forms from the meatus a large upper flap. This flap is tilted upward and its anterior margin united by sutures, with the anterior edge of the bony wound. The lower flap of the meatus is sutured to the lower portion of the anterior margin of the bony wound. There is next formed a quadrilateral flap, behind the auricle, by carrying the original incision downward and forward about 1.5 cm. and then incising backward and upward to form a flap in accord with the size of the bony cavity. The flap is held in place with sutures and tampon. The retro-auricular opening, which results, is slit shaped and can be covered easily with plaster. With reasonable recovery the cicatrization is rapid, but if the formation of epidermis is slow it is encouraged with skin-grafting.

A large number of authorities close the retro-auricular opening by primary suture but nevertheless one must

abandon primary closure, if by following it, one sacrifices safety.

In deciding on secondary closure, one must in every case weigh the pros and cons and must let the fistula exist too long than too brief a time. Close the fistula from a cholesteatoma, if the skin has remained smooth and free from irritation for six months or possibly a year, in a sensible patient, who will return occasionally for proper examination.

In performing secondary closure, there is made at the outer margin of the orifice, an oval incision. The skin is loosened freely away, together with the periosteum and so made very movable. This results in leaving four margins, two outer and two inner. The two inner margins are turned inward, toward the inner ear, and so sutured that fresh surface lies next to fresh surface. Then the two external freshened surfaces are likewise sutured and drawn together. In this way one covers the retroauricular orifice with a bridge which is cuticular in both directions.

Campbell.

The Differential Diagnosis of Vascular and Muscular Tinnitus Aurium.

383. RUMBOLD, T. F. (*Laryngoscope*, July, 1898.) The variety produced by alternate contractions and relaxations of the diseased muscles of the middle ear will cease upon the application of an extrinsic sound to the afflicted ear or ears and will remain absent for from five to sixty seconds. The writer has devised an appliance with this end in view and thus differentiates the two varieties.

Loeb.

Surgery in Obstinate Neuralgia of Mastoid Region.

384. SATTLER, R. (*Cin. Lancet-Clinic*, April 23, 1898.) Inveterate neuralgic pain in the mastoid region is frequently associated with and dependent upon distinct pathologic processes, or their remote sequences, in the pneumatic cells and mastoid antrum.

In the case reported there was the most exquisite sensitiveness without redness or swelling over the entire mastoid region, and the case has resisted all treatment except large doses of morphine. A free opening into the attic over the entire mastoid region was made, and the

cells which appeared normal were broken down, the whole region being converted into one large cavity without penetrating to the deeper cells or to the mastoid antrum. The relief was complete.

Scheppegrell.

A Few Clinical and Anatomical Points Relating to the Ear.

385. SHAW, A. J. (*Laryngoscope*, March, 1898.) Mastoids are divided into three classes:

- (1) Pneumatic—Abounding in cells or cell space.
- (2) Diploic—Smaller cell spaces and a partly sclerosed condition.
- (3) Sclerosed mastoid, where the process is solid bone.

Loeb.

Influence of Diseases of the Nares and Pharynx on Aural Affections.

386. SOMERS, L. (*Universal Medical Magazine*, No. 11.) From an analysis of 600 cases of middle ear disease, the author offers the following conclusions:

1. Sclerosis of the middle ear is usually the result of previous nasal or pharyngeal disease.

2. Suppurative otitis media is a common and frequent result of acute and chronic naso-pharyngeal disease.

3. Fully 75 per cent. of all forms of middle ear disease will show on examination, or give a history of, naso-pharyngeal disease.

4. Sixty-four per cent. of tympanic affections are coincident with pathologic changes, either in the nares or pharynx, or both.

5. Sclerotic or atrophic changes in the naso-pharynx are of little consequence in the production of deafness as compared with chronic hypertrophy, or any morbid change producing congestion of the nose and throat.

6. Of nasal affections, hypertrophy of the turbinals is the most potent factor in the production of aural disease. A deviated septum and an exostosis influence the tympanic cavity by producing changes in the atmospheric pressure.

7. Aural affections are more frequent in hypertrophy of the post-nasal space, or naso-pharynx, than in pure nasal or pharyngeal disease.

8. The effects of passing disease of the nares or pha-

rynix in the production of middle ear disease are of much importance.

9. General disease, such as measles, with local nasopharyngeal manifestations, exert a marked causative influence in the production of middle ear disease.

10. To a great extent the successful issue of aural disease depends upon appropriate naso-pharyngeal treatment.

Scheppegrell.

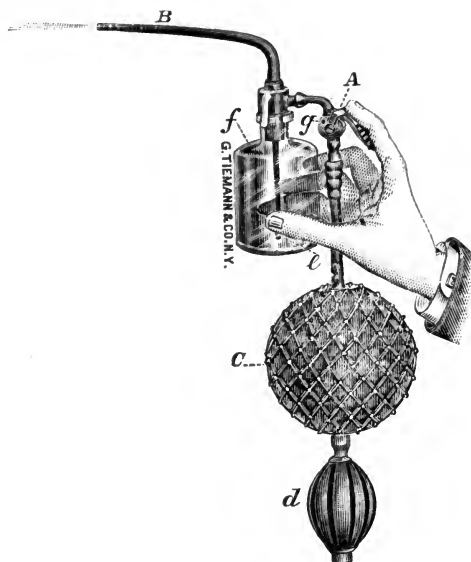
Acute Purulent Otitis Media—Mastoiditis—Pyemia—Death.

387. THOMPSON, J. A. (*Cin. Lancet-Clinic*, April 16, 1898.) There was little pain before perforation of the tympanic membrane, but persistent and severe pain afterward. There was little swelling or tenderness over the mastoid process; the purulent discharge was mixed with blood for at least 10 days. In spite of operation there was a rapid spread of infection to other parts of the body, the metastasis destroying the sight of both eyes.

Scheppegrell.

A New Constant-Current Ear Syringe, or Injector.

388. WANDLESS, H. W. (*Medical Record*, May 21, 1898.) The instrument, which is shown in the adjoining illustration,



Constant-Current Ear Syringe or Injector.

tion, is intended to obviate many of the inconveniences of the ordinary ear syringe.

Scheppegrell.

A Case of Perisinus Epidural Abscess, with Facial Paralysis—Operation—Recovery.

389. WHITING. (*Archives of Otology*, Vol. XXVII, No. 3.) A girl, aged 15, whose illness began with severe coryza, upon which acute catarrhal otitis media supervened. The Mt. was found reddened and the superior posterior quadrant bulged forward and downward. Very firm pressure over the mastoid elicited signs of tenderness. Myringotomy was done, allowing a small quantity of sero-sanguinous fluid to escape. For the following five days pain in the ear and scanty discharge persisted. On the sixth day there was almost entire relief from pain, and the discharge had ceased. However, on awakening from "an afternoon nap," she became conscious that her right eyelids did not close properly, and that she could not whistle. On the seventh and eighth days conditions remained unchanged. The facial paralysis, perhaps, a little more pronounced.

On the ninth day the writer was called to see her, and found the following condition: The membrana tympani and membrana flaccida were bulging downward and forward sufficiently far to conceal the short process of the malleus. There was a slight sagging of the supero-posterior segment of the membranous canal; a minute perforation in the inferior posterior quadrant of the Mt. could be recognized as the site of the paracentesis wound, and from this opening there protruded a small thread of sticky, plastic lymph, acting as a most effective obstacle to drainage. The mastoid aspect was negative upon inspection, but firm pressure over the region of the antrum and at the tip brought an immediate response as to tenderness.

Operation was advised, and an incision made extending from half an inch below the mastoid tip upward to about half an inch above the temporal ridge. The periosteum was normal in appearance. The cortex appeared healthy, but when the cells were encountered they were found to contain firm granulation bodies—osteoclasts—under whose action the basement substance of the bone was rapidly

being absorbed. Upon opening the antrum there escaped a gush of gas and a few drops of pus, and upon exploring the roof of the tympanum with a probe a small opening was encountered which communicated with the middle fossa, and from which, upon the introduction of the probe, some bubbles escaped but no recognizable pus. The posterior bony wall was cut away, the malleus and incus removed, also the tubercle of the zygoma and tegmen tympani. This procedure resulted in exposing a mass of plastic lymph investing that portion of the temporo-sphenoidal lobe, resting upon the superior surface of the petrous bone, and extending downward and backward into the cerebellar fossa, along the course of the descending portion of the sigmoid sinus.

The lymph at the periphery of the opening in the skull was firmly adherent and tightly sealed off the abscess cavity from the surrounding meninges. The central portion was soft and bulging, and in order to carefully examine the sinus was subjected to gentle traction, when it came off in long sticky strips. The sinus wall was reddened, but it dimpled beneath the finger and pulsed as well. The sigmoid groove was more extensively cut away, so that if any symptoms of septic phlebitis should subsequently arise, the necessary operative procedures would be greatly facilitated.

The mastoid process was removed, and in a large pneumatic space at the tip a dark, odorless fluid of the color and consistency of coffee dregs found.

During the days immediately following the operation the patient was cheerful, and exhibited no symptoms indicative of sinus or other intracranial involvement. The facial paralysis rapidly disappeared, and on the tenth day there appeared to be complete restitution of function.

Campbell.

A Simple Method for Pneumatic Massage of the Tympanic Membrane and Ossicles.

390. WINSLOW, J. (*Medical Record*, July 16, 1898.) The author advises the use of a piece of glass tubing fitted to the patient's ear and connected to a medicine dropper by means of a rubber tube, which is operated by the

fingers of the patient. The author has recommended this plan for 20 years.

[As the results of this method of treatment are not mentioned, it is difficult to judge of its merits. As a rule, however, pneumo-massage should never be placed in the hands of the patient.—Schepppegrell.]

Schepppegrell.

Report of a Case of Rupture of the Tympanic Membrane from Indirect Violence.

391. WOODRUFF, H. W. (*Laryngoscope*, March, 1898.) The extensive rupture in the inferior portion of the drum-head was caused by striking the head violently against a door-knob. The hemorrhage was slight, the edges of the wound were widely separated and in the posterior portion: the cutaneous layer alone was divided.

Loeb.

Phosphor-Necrosis of the Temporal Bone.

392. WÜRDEMANN, H. V. (*Laryngoscope*, February, 1898.) Phosphor-necrosis is much less prevalent now than formerly, on account of better hygienic surroundings in factories, improved ventilation, the vaporization of turpentine, the rigid inspection to which workmen are subjected, and the use of red amorphous, which is comparatively harmless. The disease, which is always chronic, is almost imperceptibly slow in the upper jaw, but in the lower is sometimes acute, and attended by high fever. It begins in the periosteum, and ends in death of the bone. The sequestrum adheres firmly to the underlying bone, becoming incrustated with a pumicestone-like material.

J. J. W., aet. 58, employed in a match factory, complained of pain in the left upper jaw. Two teeth were first extracted, and later all of them, after which he wore a plate. Later pain in the mastoid region appeared, and about January 5, 1895, there was a discharge of foul muco-pus from the ear. About this time he was struck on the left side of the head by a match composition, which covered the side of his face and filled the ear. His mouth was so sore at times that he could not wear the plate. In May, 1895, a sequestrum from the upper maxilla was removed by a dentist, after which he was little troubled.

He was referred to the writer in January, 1896. His face was of a pasty appearance; the left alveolar process swollen and puffy; two fistulous openings on the buccal side, and one in the roof of the mouth; roughened denuded bone; external auditory canal full of pus; decided perioritis, swelling and tenderness over the mastoid region; posterior wall of the canal reddened, swollen and painful to the touch of the probe; granulations at the lower portion of the membrana flaccida, covering a small perforation; temperature 101°.

Two days later (patient having refused immediate operation,) symptoms of septicemia appeared, and under ether the mastoid cells and antrum were opened, and the posterior and superior wall of the canal removed, the bone in the last two cases being found necrosed. Some months later, symptoms having reappeared, a loose sequestrum was found in the sinus back of the ear, so the antrum was again opened, the dead bone removed and a tube inserted for drainage.

In April, 1897, some granulations near the osseous ring of the tympanic attic were removed. In August, 1897, the mastoid was chiselled and drilled open, the external layer being found hard and cancellous, under which was found a pasty mass of necrosed bone, from which exuded greenish fetid pus; the posterior wall, which was soft and friable, was readily removed by the spoon, and as the superior wall had been largely reproduced the triangular piece of bone between the attic and the tympanum was removed, and the granulations taken away from the tympanic attic.

It may be questioned whether the temporal bone disease is of phosphoric origin. It has been shown that abscesses of the upper jaw may discharge through sinuses in the external auditory canal, or middle ear, and this may have been the starting point of the necrosis.

The character of the maxillary disease, and his occupation, leave no room for doubt in the writer's mind that the necrosis of the jaw had its origin in phosphoric absorption. The character of the middle ear and mastoid disease was similar to that of the upper jaw, very chronic in its course, and yielding but slowly and incompletely to

treatment, presenting a contrast to other mastoid cases.

Loeb.

II.—NOSE AND NASO-PHARYNX.

Foreign Body in the Left Nasal Cavity and Sequelæ.

393. BEAUDOUX, H. A. (*Laryngoscope*, May, 1898.) A shoe button was found in the antrum, which was readily penetrated. The anterior two-thirds of the inferior turbinated and a portion of the inner wall of the antrum were easily removed, and the foreign body unexpectedly discovered.

Loeb.

Sprays and Inhalents.

394. BISHOP, S. S. (*Laryngoscope*, 1898.) For cleansing purposes the following solution is advocated:

Acidi borici, sodii bicarbonatis, sodii chloridi, aa. ʒij; glycerine, ʒiij; aquæ rosæ, ʒiv; aquæ q. s. ad oi. For a permanent medicinal effect on the mucous membrane, inhalents should be combined with a purified petroleum oil, which should always be made antiseptic. Camphor, menthol, salol, oil of wintergreen, thymol, aristol, creosote, carbolic acid, oil of tar, pine needle oil and eucalyptol should be added according to indication.

Loeb.

Malignant Tumor of the Naso-Pharynx.

395. BRAULT. (*Annales des Maladies de l'Oreille, du Lar. du Nez et du Phar.*, No. 5, May, 1898.) The tumor filled the whole naso-pharynx, and could be seen through the mouth as well as from the outside of the swollen cheek, and in the nose. During the operation an attack of asphyxia occurred; tracheotomy was performed, and as much of the tumor as possible removed. The tumor was a sarcoma. The child was little relieved.

Holinger.

Cysts and Pseudo-Cysts of the Nasal Fossæ.

396. BRINDEL. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, No. 18, April 20, 1898.) At times every tumor causing a deformity of the nose was considered malignant. This is wrong. Osteoma and cysts often cause deformities. Cysts are not infrequent, but very few have been microscopically examined. There are two kinds of cysts;

extrinsic cysts, growing into the nose from Highmore's cavity, or from the skin, or from the naso-pharynx; intrinsic cysts, originating in the nose. The intrinsic cysts originate from the turbinated bone, or from the septum, or in a polypus. Each cyst can be serous or mucus, or cheesy, according to its contents. The author states that in many reports of cysts no histological examinations are published. Eight observations are described, with a microscopic examination in each case. The symptomatology, treatment and a literary index with 34 references are given.

Holinger.

A Case of Rhinoplasty.

397. CASSIDY, P. (*Medical Record*, April 9, 1898.) An interesting case, fully illustrated, of a patient of 70 years, in which a rodent ulcer was first removed from the nose and the wound covered with a horse-shoe flap taken from the infra-orbital space of the right side, and from the forehead, and twisted and laid on the nose.

Scheppegrell.

Diseases of the Accessory Sinuses of the Nose.

398. CATTLE. (*British Medical Journal*, May 7, 1898.) Catarrh of the mucous membrane with stenosis of the ostium is responsible for the majority of cases, and although cases of dental origin are not infrequent, they are of less importance and quickly recover after the extraction of a tooth.

An opening should be drilled through the canine fossa, enlarged with a chisel, and a counter-opening made in the lower meatus of the nose, the cavity being packed with iodoform gauze.

Scheppegrell.

Diseases of the Eye Dependent upon Diseases of the Nose.

399. CHAMBERS, T. R. (*Medical Record*, April 9, 1898.) In the first case reported the removal of an exostosis of the septum relieving a pain for which the muscles of the eye had been cut several times. In the second case the development of chronic glaucoma was arrested by septal operation, and in the third, choroiditis was aborted by the removal of a necrosed bone from the nostril. In the fourth case, irritation of the eye was relieved by the removal of a nasal polypus.

Scheppegrell.

Rhinitis Fibrinosa, Including a Bacteriologic and Histologic Examination of Cases.

400. CHAPMAN, G. L. (*Medical News*, April 10, 1898.) In the three cases reported, a careful bacteriological examination was made and showed the presence of staphylococci in each case. In the second case a species of saccharomyces was also found. *Scheppegrell.*

On Ozena.

401. DRS. CHOLEWA AND H. CORDES, Berlin. (*Fraenkel's Arch.*, VIII, 1, 18.) After a historical introduction and a chapter on the histology of the parts concerned, the statement is made that, as in osteomalacia, the cause and origin of the process taking place in the bony tissue cannot be given. Here, also, a tropho-neurosis may be accepted as primary cause. Cholewa states, in regard to the therapeutics of ozena, which is as uncertain as its etiology, that he is in favor of all methods of treatment which spare the mucous membrane, since he believes to have demonstrated the dependence of the alterations in the mucous membrane on the osseous changes.

First of all is Gottstein's method of tamponning, which acts in two directions: (1) In stimulating the glands of the erectile tissue, and (2) in hindering the formation of thick layers of crusts. Both will contribute much toward preserving the function of the mucous membrane if the tampons are only applied correctly; i. e., to the middle turbinal near the root of the nose, not the floor. But this therapy is but symptomatic, and can exert only little influence on the real morbid process. In osteomalacia more active calcification takes place in the bones when they are fractured, either by trauma or muscular action; a regenerative ostitis sets in, which leads to the luxuriant formation of callus and its consequences. In view of this fact, Cholewa breaks the turbinated bones. He denies that this is a rather severe method, as there is hardly any pain and discomfort. This procedure must be repeated at intervals. The reaction is inflammatory, causing a great afflux of blood, not alone to the bone, but also the mucous membrane. Therefore, there is, at first, increased secretion of pus and mucus, although the mucous membrane has *not* really been injured.

The author does not as yet consider himself justified in speaking of "cures" by this method, but recommends it, especially in recent cases. *Morgenthau.*

A Differential Diagnosis of Empyema of the Accessory Cavities of the Nose.

401 $\frac{1}{2}$. COFFIN, R. A. (*Boston Med. and Surg. Jour.*, March 24, 1898.) In cases in which, after thorough cleansing of the nose, no pus can be seen coming from some special sinus, a differential diagnosis is made by catheterizing or puncturing some cavity in turn. *Scheppegrell.*

Changes in the Turbinated Bones in Connection with Deformities of the Septum.

402. COOLIDGE, A. (*Boston Med. and Surg. Journal*, June, 1898.) Within the nasal cavities nature attempts to maintain slit-shaped channels for the passage of air, to avoid contacts and to keep the air-carrying capacity of the two sides approximately equal. This is done by change in shape of the turbinated bodies to correspond with deformities of the septum.

From this it follows that the question of pathologic hypertrophy or atrophy of a turbinated body must be judged not from its actual size, but from the width of the air passage. A turbinate should be large if it is opposite a concavity in the septum.

In treatment, therefore, the removal of such a turbinate is not indicated, except possibly in connection with operations on the septum. We do not know to what this vicarious change in the size of the turbinated bodies is due.

Scheppegrell.

Phlegmon of the Inferior Turbinated Body, with Necrosis of the Turbinated Bone.

403. DELIE D'YPRES. Communication at the meeting of the French Laryngological Society. (*Rev. Hebdom. de Laryngol., d'Otol. et de Rhinol.*)

Delies speaks about a patient of 35, who had, besides the symptoms of a stopped-up nose, those of facial neuralgia. The jaw was swollen, the nose, the eyes and the lips were closed. The physician thought of an abscess at the root of a tooth. The gums were incised, pus appeared and all seemed to be over, when a new attack brought

the patient to the office of the author. He reopened and probed the old place and found raw bone. This proved to be a sequestrum implicating the whole lower turbinated bone, after the removal of which the patient made a quick recovery.

Holinger.

Chloroform as a Therapeutic Agent in Cases of Invasion of the Nasal Cavity by Texas Screw-Worms.

404. DIBBLE, LEROY. (*Laryngoscope*, February, 1898.) Two cases are reported in which, after chloroform administration, the nasal cavity was washed out with warm carbolyzed water, followed by peroxide of hydrogen. In one case a 20 per cent. solution of cocain was sprayed into the nose for the purpose of reducing the congestion of the mucous membrane.

Loeb.

Foreign Body in Nostril.

405. DEFOUR, C. R. (*Laryngoscope*, March, 1898.) A shoe-button had been the occasion of the following symptoms, which had persisted for over three years: Recurring nasal hemorrhage, occlusion of the nose, and great enlargement of the right side of the nose.

Loeb.

Another Conservative Operation for the Removal of Nasal Synechia.

406. ELLEGOOD, J. A. (*Laryngoscope*, April, 1898.) The operation, which is somewhat similar to that described by Scheppegegrell, consists in encircling the synechia with silver wire, which is tightened every day or two until it cuts its way through the obstruction. Three cases are described in which the operation was successful.

Loeb

A Note on the Etiology of Atrophic Rhinitis.

407. ELLETT, E. C. (*Laryngoscope*, March, 1898.) Two series of cases are reported, two in one family and three in another, in which it is claimed show the different stages of the process of the transition from purulent to atrophic rhinitis.

Loeb.

The Determining Cause of Ulcers of the Nasal Septum.

408. ELLETT, E. C. (*Laryngoscope*, May, 1898.) Functionally inactive organs are prone to degenerate and become the seat of pathological change. The occurrence of

septal ulcer at the site of the rudimentary organ of Jacobson makes it justifiable to hold that organ responsible.

Loeb.

On Some Forms of Adenoid Disease Which Are Often Overlooked, and on Conditions Which May Simulate Adenoid Disease.

409. FARLOW, J. W. (*Boston Med. and Surg. Journal*, April 21, 1898.) Adenoid disease often exists, causing symptoms demanding operation, although mouth-breathing or apparent nasal obstruction are not present. Mouth-breathing may be caused by many other conditions than adenoid disease. Small tonsils with diseased crypts, prone to inflammation, demand attention as well as hypertrophied glands. The specific snuffles of young children may simulate adenoid disease.

Scheppegrell.

Treatment of Prolongation Forward of the Nasal Septum.

410. FARLOW, J. W. (*Med. and Surg. Reports*, Boston City Hospital, 1898.) In prolongation forward of the nasal septum, the extra length causes it to bend forward into the opening of one nostril, thus pushing the fleshy septum to the other side. This causes nasal obstruction, congestion, fissures and execzema of the opening of the nostril, and effects the appearance of the nose.

An incision should be made through the mucous membrane, parallel with the free edge of the septum, the perichondrium stripped back and sufficient cartilage removed.

Scheppegrell.

Hematoma, Abscess and Serous Cysts.

411. GAREL. (*Rev. Hebdom de Laryngol., d' Otol. et de Rhinol.*, No. 25, June 18, 1898.) Only few cases so far are described, yet this disease is very frequent. There are quite a number of synonyms, hematoma abscedens, acute idiopathic perichondritis, erysipelas abscedens, acute phlegmon of the septum, etc. The disease may begin as hematoma, become infected and end as an abscess. The abscess may be idiopathic from the start. Besides, we know that only serous secretion may be formed. A trauma is usually reported in connection with these affections. In one case the trauma was electrolysis, and the author readily puts the cause to lack of antisepsis on the part of

the patient. (?) The closing up of the nose in abscess only occurs five or six days after the trauma. The serous cyst is often very hard to diagnose. The affection does not need to be preceded by trauma. It can be on one or both sides. It may be mistaken for polypus. The treatment should consist in opening the cyst.

Holinger.

The Control of Nasal Hemorrhage.

412. GLEASON, E. B. (*Laryngoscope*, March, 1898.) For the past ten years the writer has used oil for the control of nasal hemorrhage, a plan which follows the suggestion of S. Hayes Agnew that the nose should be plugged with ham fat. Lately he has treated prospective hemorrhage by thrusting a piece of cotton, dripping with a 15 volume of peroxide of hydrogen, along the floor of the nose until the pharynx was touched. The pressure upon the bleeding points is greatly increased by the bulkiness of the clot.

Loeb.

Notes on an Interesting Case of Pharyngeal Polypus.

413. HENDERSON, W. (*Indian Lancet*, June 19, 1898.) The anterior nares were laid open by incising the upper lip in the median line, carrying it from the alae of the nose upward a little away from the median line, with an osteoplastic section in the nasal bone. The tumor, which was found attached to the osseous surface surrounding the posterior nares, was removed with the scissors. No statement is given as to recurrence.

Scheppegrell.

Sarcoma of the Naso-Pharynx, with Report of a Case.

414. HENGST, D. A. (*Laryngoscope*, July, 1898.) J. R., aet. 14, had had for two months difficulty of breathing, difficult and painful swallowing, headache, dullness of hearing, ichorous irritating discharge from the nose, and occasional epistaxis. A semi-solid mass was found filling the rhino-pharynx and bulging forward on the right and left side of the palate. An incision was made transversely from the zygomatic process of the malar bone skirting the lower border of the orbit to its inner and lower angle, and continued downward in the re-entering angle between the nose and cheek, and along the upper lip to the middle line, where it was turned downward, dividing

the lip at its middle. A median incision to the bone was made in the roof of the mouth from the incisor teeth backward, and the soft palate and uvula split in the middle line. After sawing the bone free from its attachment, the superior maxilla was lifted from its bed and turned to the other side, and the growth was cut away with scissors. The jaw was returned to place and held there by buried wire sutures. Twenty-five days after the operation the patient died, although the wound healed promptly.

Loeb.

Unusual Sized Rhinolith Removed with the Lithotrite.

415. HILL, J. F. (*Laryngoscope*, July, 1898.) With a history of twenty-five years' standing the patient, upon examination, exhibited a large grayish immovable mass, nearly filling the posterior nares. The mass, which was crushed by means of a lithotrite, weighed 275 grains.

Loeb.

Empyema of the Antrum of Highmore.

416. HOUGHTON, E. W. (*Laryngoscope*, March, 1898.) The means of diagnosis are transillumination of the face, catheterization of the ostium maxillare, percussion of the teeth, exploratory puncture and examination of the upper teeth. Treatment is accomplished by removal of the cause, evacuation and drainage of pus, antiseptic irrigation and removal of morbid tissue, when present, from the antrum.

Loeb.

An Operation for Correcting Deformities of the Nasal Septum.

417. KEPLINGER, L. (*Laryngoscope*, April, 1898.) In the two cases reported an incision was made over the most prominent part of the septum, the mucous membrane was dissected above and below from the septum, the projection was removed by a Bosworth saw without perforation, and the cut ends of the mucous membrane were united by suture.

Loeb.

An Adenoid Forceps.

418. KNIGHT, C. H. (*Laryngoscope*, February, 1898.) The blades, which are large and well rounded, have extensive and sharp cutting edges, making the forceps cap-

able of rapid execution. The joint is placed well back on the handles, in order that a slight separation of the fingers may insure a wide opening of the blades. *Loeb.*

Chromic Acid and Intra-Nasal Synechiæ.

419. LAVRAND. (*Rev. Hebdom de Laryngol., d'Otol. et de Rhinol.*, No. 27, July 2, 1898.) Lavrand gives as the main cause of adhesions and synechiæ the galvano-cautery. There is a great tendency in cautery wounds to form adhesions. The scabs from chromic acid cautery (chromic acid melted slowly on to the probe,) have not this tendency, because the scabs keep the surfaces apart. It is preferable to use chromic acid for cauterization than to use all kinds of separating material (cotton, gutta percha, zinc, etc.). The scabs do not act as foreign bodies, as the other material. *Holinger.*

The Aix-la-Chapelle Treatment of Syphilis of the Nose and Throat.

420. LIEVEN, A. (*Laryngoscope*, May, 1898.) The patient at 7 in summer, at 8 in winter drinks several glasses of special spring water during a half hour promenade; takes a sulphur bath (75° F.) of 20 minutes; a half hour later rests for a half hour, and then takes breakfast. He then receives daily inunctions of one of the following areas, both thighs, both axillas, breast and sides, back, both arms. The areas are rubbed for 20 minutes until they are almost dry. The patient is not permitted to bathe the parts anointed, and only those parts which are to be rubbed on the following day should be thoroughly dry. He is directed to wear woolen underwear, which he is allowed to change only once a week. A rest of a half hour follows lunch, and then exercise of two or three hours. At half past five a draught of spring water is taken, dinner follows at 7, and the patient retires at half past 10.

Loeb.

About Diagnosis and Therapy of Chronic Suppuration of the Accessory Cavities of the Nose.

421. LINDT. (*Correspondenz-Blatt fuer Schweizer Aerzte*, No. 5, March, 1898.) The comparative lack of real knowledge and success of therapy in suppuration of the accessory cavities of the nose is stated. A case of combined

suppuration of the different cavities is recorded. The frontal sinus was first operated upon, and later the Highmore's antrum and the ethmoidal cells were found diseased. Although a most thorough cleansing with curette and antiseptic solutions was given, the whole disease recurred a year later. In connection with this attack a great part of the upper roof of the orbit was found to be necrotic. After this very instructive case Lindt gives a lot of practical hints. A simple puncture of Highmore's antrum from the nose is not sufficient for diagnosis; we must always wash out the cavity with sterile salt solution. Furthermore, too much probing does damage. It may, or may not, be advisable to make a connection between the operated frontal sinus and the nose.

About the frontal sinus Lindt gives this advice: If the cavity is large and deep, to make a flap of frontal skin and bone; if it is small and flat to remove the outer table and let the skin retract to fill out the cavity.

Holinger.

An Unusual Case of Stenosis of the Nasal Passages.

422. MACKENZIE, J. N. (*Maryland Med. Journal*, February 26, 1898.) The patient had suffered from a severe attack of diphtheria, which resulted in inability to breathe through either nostril. The cautery had been used with more or less disastrous effect. When first seen, there was almost complete atresia of both nostrils, but the patient was relieved by means of a drill operation. The author concludes by inveighing against excessive surgery of the nose, especially with regard to the electro-cautery.

Scheppegrell.

Galvano-Cautic and Nasal Synechiæ.

423. MONSCOURT. (*Annales des Maladies de l'Oreille du Nez, du Lar. et du Phar.*, No. 5, May, 1898.) The galvano-cautery is often greatly abused, and, especially in the hands of the inexperienced, does great damage. The author reports one patient who 50 times, and another 90 times, had the galvano-cautery applied to the nose. The symptoms of synechiæ are given. The main thought of this paper is a protest against the too frequent use of the cautery.

Holinger.

Epistaxis as a Symptomatic Complication During a Recent Dengue Epidemic in Texas.

424. MULLEN, J. A. (*Laryngoscope*, March, 1898.) Seven cases are reported, all of which were relieved by the use of chromic acid. The hemorrhage, when general, was an arterial oozing from the turbinal and septal mucous membrane; when local, it was confined to the cartilaginous septum and anterior end of the inferior turbinate.

Loeb.

Secondary Hemorrhage Following the Removal of Adenoid Vegetation.

425. PREBLE, W. (*Aust. Med. Gazette*, May 19, 1898.) A girl of 11 years was operated upon for adenoid vegetation, which were removed with forceps and the fingers. The bleeding was not severe, and ceased within a few minutes. The child was feverish the next day, but on the sixth was apparently well and breathed freely through the nose.

On the seventh day, while out for a walk, a sudden hemorrhage occurred, and she was carried into the house in a faint. The hemorrhage ceased under cold syringe. About six hours later the hemorrhage recurred, but was arrested by plugging the posterior nares. The morning of the eighth day, however, there was a sudden gush of blood, and she died before assistance could be rendered. The blood was only partially clotted.

The author finds 21 cases of severe primary, and five of secondary hemorrhage, following adenoid operation recorded in literature.

Scheppegrell.

A Case of Nasal Syphilis, With Pressure Symptoms Simulating Meningitis.

426. RICHARDS, G. L. (*Laryngoscope*, May, 1898.) A man, aet 32, suffered from headache and obstruction of the right nostril for four months. A portion of hypertrophied turbinated was removed. While the obstruction disappeared, the headache continued and increased. This disappeared after thorough curettement of the ethmoid and removal of dead bone.

Loeb.

On the Use of Formaldehyde In Atrophic Rhinitis.

427. RICHARDS, G. L. (*Laryngoscope*, May, 1898.) The

nostrils are washed out with a solution of formaldehyde, containing five to ten drops of the 40 per cent. solution to eight ounces of hot water. The crusts diminish, and all unpleasant odor ceases. *Loeb.*

The Texas Screw Worm—Report of a Fatal Case.

428. [ROBERTSON, C. M. (*Laryngoscope*, March, 1898.)] A man, aet 54, presented the following symptoms: Offensive odor and bloody discharge from the nose, dizziness or staggering when locomotion was attempted, somnolency, pulse 80 and temperature 101°. On the next day the symptoms increased, and on the following day the discharge became more fetid and profuse, and the worms were found in the right anterior nares, and many were removed by means of slender forceps. The patient grew gradually worse, coma appeared and increased until death four days later. *Loeb.*

Importance of Early Recognition of Enlargement of the Pharyngeal Tonsil.

429. SAWYER, F. D. (*Medical Record*, May, 1898.) Early treatment may prevent serious complications.

Scheppegrell.

Chronic Suppurative Ethmoiditis.

430. SOMERS, LEWIS S. (*Journ. Amer. Med. Ass'n*, June 4, 1898.) Acute or chronic rhinitis is probably the chief etiological factor. Mucous polypi are frequently present, and the general health may be affected by septic absorption. Treatment consists in removing all diseased tissue, obtaining free drainage and maintaining asepsis as far as possible.

Scheppegrell.

Tuberculosis of the Nose, with Report of a Case of Primary Tuberculosis.

431. THEISEN, C. F. (*Laryngoscope*, February, 1898.) The patient, aet 36, was first treated 19 months before for an attack of "grip," and since that time there had been more or less obstruction of the left nostril, with considerable secretion. Previous and family history were good, except in regard to a chancre which had appeared some years before. Examination of lungs, heart and other organs failed to disclose any disease. The left inferior turbinal and septal mucous membrane seemed somewhat

inflamed, and a growth with an irregular surface was observed upon the cartilaginous septum. This was attached by a broad base, was rather firm to the touch, though it was not freely movable. Administration of potassium iodide failed to improve the condition, and seemed to aggravate it. The growth, which was removed by the cold snare, proved to be a granulation growth containing numerous tubercle bacilli. Thereupon the place of attachment was cauterized, and applications of concentrated solutions of lactic acid with iodoform insufflations were made. The process did not extend and no recurrence took place during the year and a half since the operation was performed. *Loeb.*

Facial Hemiatrophy, Causing Deformity of the Septum Nasi.

432. THOMPSON, J. A. (*Laryngoscope*, April, 1898.) Since her fifteenth year the patient, aet 30, there has been defective development of the left side of the face. The septum was badly distorted, two operations being required to restore the lumen of the right side of the nose.

Loeb.

A Form of External Rhinitis Due to Klebs-Loeffler Bacillus.

433. TODD, C. (*Lancet*, May 28, 1898.) During the past eighteen months 51 cases of this form of rhinitis have occurred in the London Fever Hospital. In each case the Klebs-Loeffler bacillus was found. The following observations were made:

1. Children convalescent from scarlet fever in hospital are very liable to a certain form of external rhinitis, often accompanied by the formation of secondary pustules on various parts of the body.

2. This rhinitis, though not membranous, is associated with the presence of the Klebs-Loeffler bacillus in the nostrils, this organism being absent from the fauces.

3. It is contagious as such, but has not been observed to give rise to faucial or laryngeal diphtheria.

4. It is unaccompanied by rise of temperature, albuminuria, or marked glandular enlargement.

5. It appears to be limited to children under 13, and is most frequently observed between the ages of 3 and 4.

Loeb.

Contribution to the Study of Nasal Syphilis.

434. VACHER, LOUIS. (*Annales des Maladies l' Oreille, du Larynx, du Nez et du Phar.*, No. 7, July, 1898.) Vacher puts on record three cases of syphilis of the nose. Two of them never had any specific treatment before. Tertiary symptoms are often very uncertain; they follow five to ten years after the primary; they are ulcerations and tumors marked by scabs.

The first patient was for years treated for syphilis continually, when an ill-smelling coryza appeared. Examination showed extensive necrosis of the septum. He got—

Bichloride of mercury,	-	1.0,
Salicylate of soda,	- -	2.0,
Boiled water,	- - -	1000.0,
For injection and internal use.		

A part of the septum was soon removed. A few months later another sequestrum (25 by 8 by 10 and 20 mm.) consisting of a large part of the base of the skull was removed. Since that time the patient is cured.

The second observation concerned a woman with a large perforation of the soft palate. She had never had any specific treatment. She improved under the same treatment. The perforations of the palate were closed by sutures.

The third case was a boy of 15, who was living in Brazil and had a colored nurse. The nose and the eyes at the examination showed all the symptoms of tertiary syphilis, which disappeared after proper treatment.

Holinger.

Hay Fever.

435. WEAVER. (*Journal American Med. Ass'n*, June 4, 1898.) The author believes the uric acid diathesis to be an important factor in hay fever. Local treatment combined with constitutional remedies to correct this diathesis is advocated.

Scheppegrell.

Mental Disturbances in Turbinate Hypertrophies, or Nasal Stenosis.

436. WOODWARD, J. F. (*Atlanta Med. and Surg. Journ.*, July, 1898. As an illustration of the effects of nasal stenosis on the mental condition, 10 cases are reported, in which

more or less marked mental disturbances, believed by the author to be due to turbinate hypertrophy and other causes of nasal stenosis, were relieved by appropriate treatment.

Scheppegrell.

III.—MOUTH AND PHARYNX.

The Serum-Exanthemata Observed in the Antitoxin Treatment of Diphtheria; Their Pathogenesis and Prevention.

437. BERG, H. W. (*Medical Record*, June 18, 1898.) The cutaneous effects depend upon the quantity, variety, and number of injections. They are more common in hospitals than in private practice. The following groups are considered:

1. Those resembling simple erythema.
2. Those resembling scarlatiniform erythema, (a) without desquamation, (b) with desquamation.
3. Those resembling morbilliform erythema, (a) without desquamation, (b) with desquamation.
4. Those resembling for the most part multiform erythema, which forms the largest group.

These rashes may occur within a few hours after the injection or several weeks after, and they usually last about three days.

It has been shown that injection of pure blood serum from the horse produces an eruption in a large percentage of cases, and that the addition of antitoxin serum does not increase the frequency of these eruptions. The remedy advised is that the antitoxin be so prepared that the necessary quantity may be given in the smallest quantity of serum, and that all horse serum to be used in serum therapy be carefully filtered through the finest Chamberland filter.

Scheppegrell.

Retro-Pharyngeal Abscess Caused by Streptococci in a Child of Thirteen Months.

438. BOUCHERON. (*Rev. Hebdom. de Laryngol d'Otol et de Rhinol*, No. 29, July 16, 1898.) A child of thirteen months had several accidents, and finally on the posterior wall of the pharynx an abscess developed. The glands on the side of the neck swelled and formed an abscess, which was opened and showed streptococci; 1 cc. of serum of

Marmorek a day was injected and the child got well, the pharyngeal abscess evacuated through the opening of the lymph glands.

Holinger.

Macroglossia, Lymphangiectasis of Floor of the Mouth.

439. BRAULT. (*Annales des Maladies de l'Oreille du Lar. du Nez et du Phar.*, No. 5, May, 1998.) Macroglossia, Lymphangiectasis of the floor of the mouth and of the cervico-facial regions, amputation of a conical piece of tongue; results of the lymphangiectasis; presence of pneumococcus, recovery; later result. The patient was a child of seventeen months. All is described above in the heading.

Holinger.

On Some Anatomical Particulars Having Relation to the Pathology of the Lingual Tonsil.

440. LENOX BROWNE. (*Rev. Hebd. de Laryngol, d'Otol et de Rhinol*, No. 23, June 4, 1898.) The author gives credit to Escat for his good work on the lingual tonsil. He adds to it some new points. The pharyngeal and palatal tonsil stop growing at the age of 20, the lingual tonsil does not. There are only a few cases reported of hypertrophic lingual tonsil in children. We find proofs of regressive metamorphosis in the pharyngeal tonsil, never in the palatine or lingual tonsil. The lingual tonsil may even have crypts. The varicose veins at the base of the tongue may be seen in children, and are not signs of disease of the lingual tonsil. A symptom of hypertrophy of the lingual tonsil is pharyngeal tenesmus. Catarrhal inflammations and phlegmons are rare in the lingual tonsils. Diphtheria never has its primary location on the lingual tonsil. Scarlatina and syphilis rarely locate there. The use and abuse the voice is a great factor in producing chronic hypertrophy of this region. There is no more danger of hemorrhage in using the lingual tonsillotome, than there is in dealing with this organ in any other way. The varicose veins at the base of the tongue are not entirely without danger. The author describes a disease called varicose pharyngitis. The symptoms are plethora and spitting of blood with or without coughing. Lewin described this disease in 1865. Lennox-Browne describes a case of lymphoma, and a case of fibroma of the lingual tonsil. Malignant neoplasms of the lingual tonsil are frequent. The writer mentions epithelioma and

lymphosarcoma, and describes cases. A case of lupus was cured with 60 per cent. of lactic acid. A case of lepra gave no result.

Holinger.

Tracheotomy in Diphtheria.

441. CALDWELL, C. E. (*Cinn Lancet-Clinic*, April 30, 1898.) In a case of diphtheria in a four year-old child with dysphagia, intubation was unsuccessful, as the tube was repeatedly dislodged. The symptoms appearing urgent, rapid tracheotomy was performed, the child making a successful recovery.

Scheppegrell.

A Case of Removal of the Left Half of the Tongue for Epithelioma after Preliminary Ligature of the Lingual Artery.

442. DAVY, T. G. (*Aust. Med. Gazette*, April 20, 1898.) The operation was successful, and there had been no recurrence at the time the report was made.

Scheppegrell.

Method of Operating for Small Epithelioma of the Lip.

443. DOWD, CHAS. N. (*Medical Record*, March 26, 1898.) In spite of the favorable conditions in epithelioma of the lip, the mortality is large. Of 290 cases reported, 66 had the lower lip involved. The removal of the growth from the lip should be accompanied by the excision of a good-sized wedge of tissue. A large piece may be removed without producing an unsightly deformity. The submaxillary cases should be carefully explored and all diseased lymphatic glands removed.

Scheppegrell.

Report of an Unusually Severe Case of Diphtheritic Paralysis Which was Followed by Complete Recovery.

444. FLITCROFT, W. T. (*Medical News*, May 28, 1898.) The patient, eight years of age, suffered from a malignant type of diphtheria for which 200 units of Mulford's antitoxin were injected. The child appeared to improve, but on the third day there was a sudden hemorrhage, a pint of blood being lost before it could be arrested. Six weeks afterward paralysis developed, first involving the left eyelid, later, in rapid succession, the right eyelid, the muscles of deglutition, and finally the lower limbs.

The child became frightfully emaciated, and was fed by means of a stomach tube introduced through the nose in addition to rectal feeding.

The author believes that without the antitoxin this pa-

tient would not have lived to develop paralysis, and that had the treatment been instituted earlier, recovery would have promptly followed the initial dose, and paralysis would have been prevented. *Scheppegrell.*

On the Treatment of Certain Forms of Cervical Lymphadenitis by the Introduction of Medicinal Substances into the Crypts of the Fauical Tonsils.

445. GOODALE, J. L. (*Boston Med. and Surg. Journ.*, May 19, 1898.) From a series of investigations on the subject of tonsillar absorption, the following conclusions were obtained:

1. Absorption exists normally in the tonsils, and takes place through the mucous membrane of the crypts.

2. The path of the absorbed substances is in the inter-follicular lymph channels in the direction of the larger fibrous trabeculæ at the base of the organ.

3. During the process of absorption, foreign substances encounter phagocytic action on the part of the polynuclear leucocytes situated in and adjoining the mucous membrane.

4. Bacteria are normally present in the crypts, but are not usually demonstrable in the tonsillar tissue proper.

5. In view of the preceding facts, the supposition appears possible that bacteria may be continually making their way into the tonsillar tissues, but at the moment of entering encounter conditions which terminate their existence.

These facts demonstrate that a bacterial invasion from the mouth is possible. In the same manner, the normal tonsillar absorption may be applied in the treatment of chronic angular lymphadenitis. The method is as follows:

Three or four drops of a 10-per-cent. aqueous solution of iodine or other medicament are drawn into the syringe through the canula. The patient's tonsils are brought into view, a crypt is selected and the distal end of the canula introduced as far as it will go. The fluid is expelled into the lumen of the crypt and the canula withdrawn. The other crypts are then filled in order, the injections being usually repeated on the third or fourth day.

In the majority of cases treated by this method, a marked change in the glandular swelling occurred, and in a few

others, which were apparent as suitable for the application of this method, no alteration resulted. *Scheppegrell.*

Electricity in Acute Tonsillar Inflammation.

446. KEELER, E. E. (*Journ. Electro-Therapeutics*, June, 1898.) The application of the electro-cautery is recommended, the point being carried into each inflamed crypt.

[Acute inflammation of the tonsil is one of the strongest contraindications for the use of the electro-cautery in this region.—*Scheppegrell.*]

Three Cases of Acute Miliary Tuberculosis of the Pharynx.

447. KICER, GOTTLIEB. (*Laryngoscope*, Feb. 1898.) CASE I. F. P. aet. 6 years, was admitted to the hospital suffering from bilateral pneumonia, and was confined to bed for four weeks. After this, respiration grew progressively worse, the patient being compelled to assume a sitting posture. Examination showed general redness of fauces, pharyngeal and laryngeal mucous membrane injected and swollen, vocal bands normal, infiltration of subglottic membrane, cervical glands swollen, axillary and inguinal glands slightly involved, rough bronchial inspiration sound and almost inaudible, expiration sound.

Inferior tracheotomy was performed, and two weeks later superior tracheotomy. When the tube was removed two weeks later respiration was easy and free. Three weeks later patient complained of pain in the throat and difficulty of swallowing, and of nasal respiration. After this, rapid emaciation ensued, frequent night sweats followed, while the pharyngeal mucous membrane became studded with miliary tubercles. A similar condition was found developing in the laryngeal mucous membrane, accompanied by deep infiltration, which continued to spread. Autopsy exhibited miliary tubercles in both lungs, bronchial glands swollen, and caseous, the interior of the larynx a continued ulcerated surface, the soft palate ulcerated throughout with deep infiltration. Miliary infiltration and tubercles were found in the spleen, liver and kidneys.

CASE II. R. L. aet. 55 years, bricklayer, with decided phthisical family history; symptoms on admission to hospital were painful deglutition, emaciation, profuse night sweats. Numerous miliary tubercles were found upon the

soft palate and uvula, appearing in confluent masses in some points and with beginning ulceration. The same were found upon the posterior wall of the pharynx and and rhinopharynx. To the touch the soft palate was firm, thickened, and the elasticity of the tissues destroyed. The larynx was almost normal, the voice natural; there were no cough, no expectoration and practically no physical signs. Difficulty of swallowing increased, aphonia developed and patient soon died. Upon post-mortem examination, both lungs were found infiltrated with miliary tubercles, the mucous membrane of the trachea, larynx and pharynx in the greater part ulcerated, ulcerations spreading over the tonsils and soft palate, tubercles in other organs.

CASE III. C. W. aet. 23. When 16 years of age had a severe cough. Emaciation has been great during past two months. The palate and lateral wall of the pharynx were the seat of miliary infiltration, and a large ulcer was observed upon the left tonsil. Although at that time the larynx appeared normal a week later the epiglottis, entire laryngeal mucous membrane and aryepiglottic fold were much infiltrated. Difficulty of swallowing and all symptoms increased, and pulmonary edema supervened in two months. No post-mortem was permitted. *Loeb.*

A Case of So-called Recurrent or Chronic Abscess of the Soft Palate.

448. KING, G. (*Laryngoscope*, April, 1898.) The patient aet. 38 had had six years before a severe tonsillar inflammation, which subsided upon the discharge of pus. No further attack occurred until August, 1897, when he was taken with a similar seizure. After ten days of great suffering an incision in the palate was made by his physician but no pus was evacuated. Three or four days later there was spontaneous rupture and discharge of pus. While the acute symptoms subsided there remained a constant annoying sensation in the throat accompanied by the discharge of a small quantity of pus. Two months after the attack the writer found a fistulous tract leading from near the middle of the anterior pillar on the right side upward and backward to the supratonsillar fossa. Application of chromic acid to the tract was twice made with no

result. Cure was effected by laying the entire tract open by means of an electrocautery knife and biting forceps.

Loeb.

Transillumination in the Diagnosis of Sinus Disease.

449. KNIGHT, C. H. (*Laryngoscope*, July, 1898.) The transmission of light may be obstructed, not only by a thickened mucous membrane, but also by bony septa subdividing the cavity, exostosis projecting into it, unusual thickening or distortion of the bony wall. Diminution of light may be occasioned by deficient resorption of the maxillary bone and increase results from excessive resorption, and according to so from mucocele and cyst of the antrum. The writer's conclusion is that with ordinary care the proportion of cases in which the light test may prove delusive is extremely small. An antrum filled with pus must be opaque. Almost the only chance for error is in the case of an asymmetrical skull, of which the larger antrum contains a small quantity of pus. The evidence furnished by the transillumination must be regarded as corroborative rather than conclusive. He protests against explorative puncture as a diagnostic measure, and against the adoption of the usual methods of surgical interference in all cases of empyema.

Loeb.

Bucco-Lingual Leucoplakia, Coexistence of Psoriasis of the Tongue and Skin.

450. LACOARRET. (*Rev. Hebdom, de Laryngol, d' Otol, et de Rhinol*, No. 28, July 9, 1898. This affection has different names: leucoma, leucoplakia, smoker's patches, opaline patches, buccal leucoplakia, leucokeratosis, etc. The author draws the following conclusions: Leucoplakia is sometimes the result of a simple inflammation of the mucous membrane after different irritations. Sometimes it is the expression of an arthritic or herpetic diathesis. Smoking, syphilis and alcohol are named as irritants. In the second case we have a chronic state which is similar to psoriasis of the skin above mentioned. Furthermore, pressure from teeth, and strongly spiced foods, are causes that throw a more than normal sensitive mucous membrane into these conditions.

Holinger.

About the Non-Interference of the Facial Nerve with Paralysis of the Soft Palate.

451. LERMOYEZ. (*Annales des Maladies de l'Oreille, du Larynx, du Nez et du Phar.*, No. 6, 1898. In the text books this mistake is still very frequently met. Pathology admits wrong theories and builds other theories on them. The irritation of the facial nerve does not produce contractions of the soft palate; the palate only reacts from the vagospinal nerve. The paper is very carefully worked out. *Holinger.*

Oropharyngeal Mycosis.

452. LINCOLN, R. P. (*Medical News*, April 30, 1898.) The leptothrix buccalis predominates in the morbid product, and it is not improbable that, as the soil has become favorable by a certain degree of inflammation, the spores of the leptothrix, which seem to be always present in the mouth, find lodgement in the mucous crypts and develop more rapidly than under ordinary circumstances, and that these bundles with their products, though other fungi may be associated with them, constitute the disease.

The treatment should be radical; all the deposit must be destroyed and the surface from which the leptothrix develops changed. The electro-cautery is useful in such cases. Pyoctanin is also recommended. *Scheppegrell.*

Glossitis in Typhoid Fever.

453. MCCREA. (*Journ. American Med. Ass'n*, July 2, 1898.) This is the first case observed in a series of 700 cases of typhoid fever at the John Hopkins Hospital. It occurred during convalescence from the original attack and ushered in a relapse. The case was mild, and diminution of the swelling followed rapidly after free incision.

Scheppegrell.

A New Soft Palate Elevator.

454. MAHN. (*Annales des Maladies de l'Oreille, du Lar. du Nez. et du Phar.*, No. 6, June, 1898.) The instrument consists of a tube in which a fork-like wire is movable. It is self-retaining. *Holinger.*

For What Period of Time can Immunity from Diphtheria be Conferred by a Single Injection of Antitoxin.

455. MORRILL, F. G. (*American Medico-Surgical Bul-*

letin, June 10, 1898.) Immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred for at least 10 days by the injection of a small dose (100 to 250 units) of serum, provided it is given 24 hours previous to actual infection.

A larger dose (250 units for a child of two years up to 500 units for one of eight years or over) will confer safety for three weeks, or, to be more conservative, 20 days under similar conditions.

No harm will result from the treatment in the vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

Scheppegrell.

Sudden Death from an Immunizing Dose of Antitoxin.

456. NIFONG. (*Medical Review*, May 7, 1898.) The author reports a death following the injection of an immunizing dose of diphtheria antitoxin. The patient, a lad of 15 years, of slight build and poor circulation, after exposure to diphtheria, complained of sore throat. The tonsils were slightly enlarged and the throat was red. He was given an injection of between three and four cubic cms. of antitoxin, strength 1500 units. Two girls were given similar injections from the same bottle, without any bad results whatever.

Ten minutes after the injection, the boy became pale, complained of numbness of the extremities; later, he became cyanosed, his face swelling; he vomited freely.

An injection of nitro-glycerin was given and artificial respiration resorted to, but death followed 35 minutes after the antitoxin had been administered. The fluid used was furnished by the city chemist of St. Louis. *Scheppegrell.*

Supratonsillar Fossa as the Starting Point of Infection.

457. PATTERSON, D. R. (*Laryngoscope*, July, 1898.) In the development of the parts about the pharynx, we have the arcus palatoglossus formed from the second visceral arch. The palate growing as a fold from the upper jaw crosses this arch, as well as the corresponding second cleft, and divides it into an upper and lower part. The remains of the cleft above the palate forms the fossa of Rosenmüller; below the palate lymphoid tissue develops,

forming the tonsil, and the remainder of the cleft at the upper part constituting the supratonsillar fossa. The part of the tonsil uniting the fossa shows an arrangement of structure which differs somewhat from the rest of the gland, the lymphoid tissue being in a very loose, open net-work which contrasts with the compact structure of the lower part of gland. The crypts and lacunæ are large and open freely, communicating with each other. The secretion from the lower crypts of the tonsil is forced upward into these, and becoming aggregated into caseous matter readily undergoes decomposition. The most frequent local inflammations resulting from infection are those of the tonsils. Sometimes the attack may be aborted by removing the caseous mass from the fossa, and cleansing it out with carbolic acid. In two cases of lacunar tonsillitis following intra-nasal cauterization, the attack began in the upper part of the tonsil as if it spread from the fossa, which contained in each case a cheesy mass. In peritonsillitis the fossa is involved, and its anatomical relations make it probable as the source of infection. The cellular tissue in contact with any part of the fossa is liable to infection, and inflammation may, therefore, be set up at various points. Septic pharyngitis frequently starts from the fossa, and in all possibility Senator's inflammation may originate likewise. Pharyngomycosis spreads from this space, and a favorite starting place for tuberculosis is in and around this fossa.

Loeb.

Chancroidal Tonsillitis with Ulcers and Membranes, Caused by Spirils and Bacilli of Vincent.

458. RAULT, (*Rev. Hebdom. de Laryngol. d'Otol. et du Rhinol.*, No. 30, July 23, 1898.) A rare affection of the tonsils is described, which looks most like a primary chancre or a secondary syphilitic affection, and really has been mistaken for it. The author names a number of writers who described the same or similar conditions. On one, rarely on both tonsils, a flat ulcer is noticed covered with grayish, white membranes. The membranes can not at first so easily be removed as later on. The ground of the ulcer becomes necrotic and forms a new membrane with some red granulations, (in one case even the whole tonsil was necrotic and had to be removed.)

The expired air has a fetid odor. The submaxillary glands usually are not swollen. This is important on account of the differentiation from chancre. The patient has usually no fever but feels simply tired. The diagnosis has to consider besides primary and secondary syphilis, diphtheria. In this however, the general, as well as the local conditions are widely different. The course of the disease is very slow, often taking several months. It must be confounded with herpes or cancrroid. The bacteriologic examination reveals spindle shaped bacilli and spirils. The author compares them with other forms, but cannot make up his mind where really to classify them. The treatment of the disease is equally difficult. The best results were obtained with formaldehyd 6 to 10 drops in 20,0 glycerine for swab. Four cases are described. Three were in medical students. The authors think that they look into their throats oftener than other people, and therefore come oftener to the specialist.

Holinger.

The Non-Operative Treatment of Diseases of the Upper Respiratory Tracts.

459. SCHEPPEGRELL, W. (*Laryngoscope*, July, 1898.) The writer, while realizing fully the good results obtained from operations, maintains that the necessity for radical measures is present in but a small minority of cases. In nasal obstruction, unless it is sufficiently great to reduce the breathing on the affected side fifty per cent., an operation is rarely demanded, unless required by the condition of the other nostril. Even coryza, according to some, requires surgical treatment. A more successful plan in a spray of guaiacol in albolene, 2 per cent. and the administration of 10 grains of quinine in two doses at intervals of ten hours. Overcauterization in hypertrophic and intertumescent rhinitis is a serious abuse. While cauterization is admissible in hyperplasia, it is seldom required in intertumescence. Ozena is to be treated with cleansing solutions followed by topical applications, sprays, massage, electrolysis and serum therapy. In disease of the accessory sinuses surgical measures means are almost imperative, yet conservatism is not out of place. For nasopharyngeal catarrh a proper douche for cleansing the nasopharynx is advocated. Even in hypertrophy of the phar-

yngeal and faucial tonsil the *laissez faire* plan is a good one unless the indications positively point to surgical interference.

The nose and throat specialist should avoid the tendency of becoming narrow in his views, and of seeing the patient only through the nasal speculum and laryngoscopic mirror, but he should devote much thought to general medicine.

Loeb.

Xerostomia--Mouth-Dryness.

460. SHARP, A. J. (*British Med. Journal*, May 7, 1898.) An unmarried woman of 41 years suffered from mouth-dryness to a marked degree, the symptoms developing suddenly 18 months before the patient came under observation. The only neurotic history obtainable was that of coccygodynia, which had been cured. There was no urinary disorder nor any sign of caroditis or pressure on the salivary apparatus.

Reference is made to a table of 19 recorded cases by Frazer, from the Edinburg Hospital reports of 1898.

Scheppegrell.

Intubation in Diphtheria.

461. SIMPSON, W. K. (*Medical News*, March 19, 1898.) A careful description of the advantage and technique of this operation.

Scheppegrell.

The Innervation of the Muscles of the Soft Palate.

462. TURNER, W. A. (*Laryngoscope*, July, 1898.) The three steps in the history of the innervation of the muscles of the soft palate may be summarized as follows:

1. From the trunk of the facial nerve through the vidian and large superficial petrosal nerves to the spheno palatine ganglion, and thence by the posterior palatine branch of the soft palate, a view no longer maintained.

2. By the accessorius vagi nerve to the trunk of the pneumogastric, and then by the pharyngeal branches to the pharyngeal plexus and soft palate.

3. From the lower end of the nucleus ambiguus through the lower vagal roots to the pneumogastric nerve trunk, reaching the soft palate by the pharyngeal branches and the pharyngeal plexus.

The last is the view upon the origin and course which receives much report from recent investigation.

The conditions under which palatal palsy may be met, are:

1. Diseases interfering with the nucleus ambiguus, (a) chronic bulbar paralysis, in which is found a progressive bilateral degeneration of the nerve cells; (b) tabes dorsalis, a state in which the degeneration of the nucleus may be on one or both sides; (c) syringomyelia, characterized by new growth formation extending upward into the medulla oblongata and involving the nuclei of the nerve root.

2. Implication of the nerve root between their emergence from the side of the bulb and their exit from the cranium through the jugular foramen. The causes of this are numerous, but are chiefly meningeal, e. g., syphilitic and malignant affections.

3. From the pressure of malignant, tubercular or other growths deeply in the neck upon the bunch of the vagus before the pharyngeal branches are given off. *Loeb.*

Latent Tuberculosis of the Tonsil.

463. WALSHAM, H. (*Lancet*, June 18, 1898.) In 20 out of 34 consecutive post-mortem examinations held at the City of London Hospital for Diseases of the Chest, tuberculosis of the tonsil was found present. From this circumstance, and by reason of the experience of other investigators, the writer draws the following conclusions: (1) that the tonsils, instead of being almost immune from tuberculous disease, are very frequently affected; (2) that tubercle may be primary in the tonsil; (3) that the tonsils are very frequently secondarily affected in persons suffering from chronic pulmonary tuberculosis; (4) that when the tonsils are tuberculous, the cervical glands receiving the lymphatics from the organs are also frequently affected with tubercle; (5) that the follicular glands at the base of the tongue are rarely found tuberculous; (6) that the tonsil may be affected from without or through the bloodstream in acute miliary tuberculosis. *Loeb.*

The Rapid Diagnosis of Diphtheria by the Koplik Method.

464. WATSON, W. T. (*Maryland Med. Journal*, April

2, 1898.) Koplik has found that a bacteriologic diagnosis of diphtheria may be positively made within $2\frac{1}{2}$ to 3 hours. The method depends upon the principle of forcing the growth of the bacillus during the first $2\frac{1}{2}$ to 3 hours at the most favorable temperature, 38 degrees cent.

In certain instances, a diagnosis of diphtheria is made by this method, which would be impossible in the ordinary way, for where there are few diphtheria bacilli and many streptococci in the culture, the bacilli outgrow the cocci in the first few hours, but later are overgrown by the streptococci. The culture medium used is the Loeffler blood serum, such as is furnished by our health department.

A simple incubator may be used, care being taken to keep the temperature at 38 degree cent. At the end $2\frac{1}{2}$ to 3 hours, according to Koplik, the colonies can be distinguished on the surface of the serum with a magnifying glass. The whole surface should be scraped in a longitudinal direction with a platinum loop, and the scraping smeared on a cover glass, stained and examined in the usual way. The author has been able to diagnose four cases of diphtheria in 5 hours, two cases in $4\frac{1}{2}$ hours, one in $3\frac{1}{2}$ hours, and one case in 3 hours. *Scheppegevell.*

Remarks on Pharyngeal Mycosis.

465. WRIGHT, J. (*Laryngoscope*, April, 1898.) The spores of the fungus, and even the mycelium threads are nearly always present in the buccal or pharyngeal cavity; the growth of the germs to such dimensions that the mass is visible to the naked eye, follows an unknown change occurring in the climate or soil of the mouth. The crypts in the lymphoid structure are the most favorable seats for their growth, but they find other breeding places such as carious teeth. The treatment consists in destroying the crypts and putting the teeth in good shape, and if these fail, a change of climate is advisable. *Loeb.*

Concerning the Absorption of Foreign Bodies Through the Tonsils, and its Relation to the Development of Infectious Processes.

466. X. (*Journ. American. Med. Ass'n*, June 18, 1898.) A reference to the investigations of Dr. Goodale, the results of which are stated as follows:

Absorption occurs normally through the mucous membrane of the tonsils.

The absorbed materials pass in through the follicular lymph spaces in the direction of the larger connective tissue septa.

During the absorption, the foreign bodies are subjected to the phagocytic action of the polynuclear leucocytes.

Bacteria normally present in the lacunæ are not as a rule found in the tonsillar tissue.

Bacteria that may enter the tonsillar tissue would seem to be destroyed very soon after entrance.

It would also appear that acute lacunar tonsillitis is most frequently caused by the absorption of irritating toxins through the mucous membrane of the crypts, in which the bacteria grow as if in a test-tube. *Scheppegrell.*

IV.—LARYNX.

A Case of Laryngectomy.

467. BELL, J. (*Montreal Med Journ.*, May, 1898.) A patient of 65 years was found to be suffering from epithelioma. Low tracheotomy was first done and afterward the entire larynx removed. The patient made a good recovery. *Scheppegrell.*

Treatment of Hoarseness in Singers and Speakers.

468. BOTTOME, F. A. (*Journ. American Med. Ass'n*, July 2, 1898.) In hoarseness not due to abnormal conditions of the nose and naso-pharynx, the most common cause simple acute laryngitis, the result of undue exposure. In these cases local treatment should be avoided, and constitutional methods, such as hot mustard foot-baths, calomel, aconite, etc., should be administered. Cold may be applied to the larynx, and perfect rest enjoined.

A sudden accumulation of mucus on the vocal cord may be treated by inhalations. Cases of temporary paralysis of the vocal cords sometimes occur. Singer's nodules are frequently due to vicious methods of singing, and the correction of this and systematic exercise form the best treatment. *Scheppegrell.*

Contributions to the Diagnosis and Treatment of Laryngeal Cancer.

469. OTTOKAR CHIARI (Vienna.) (*Fraenkel's Arch.*, VIII, 1, 66.) While the laryngoscope is of the greatest importance, the histological examination of a small piece of growth is of much value: a positive result is a certain factor in favor of the diagnosis of cancer, but a negative one is not unequivocally against it. The histologist may err in diagnosing cancer when it is not present. The section may have been made obliquely whereby cancer nests are made to appear in the midst of connective tissue, while one is really dealing with normal prolongations of epithelium which reach into the depths and appear isolated in oblique sections. Horizontal sections made near the surface are still more apt to lead to such errors. Then, the diagnosis of cancer may not be made if the operator removes only pieces from the infiltrated connective tissue, or papillary vegetations from the neighborhood of the neoplasm. Finally, it must not be forgotten that mixed tumor occasionally occurs. A case is on record in which the diagnoses were successively made of granuloma, fibroma, angio-sarcoma and, lastly, sarcoma, while it was really carcinoma. Once epithelioma was thought to be present on the evidence of the histological examination, while the larynx after extirpation proved to be tuberculous. However, the author cites a few cases to show that the histological examination of pieces removed for that purpose is, after all, the most trustworthy aid to diagnosis. In one the suspicion of cancer seemed well founded because of the irregular development of the epithelium, of the variety of the single epithelial cells, of the appearance of large vascular spaces covered by the epithelium (a point in the differential diagnosis between pachydermia and carcinoma upon which Klebs has laid great stress), in addition to the numerous relapses following so closely upon each other and occurring in the same spot. Nevertheless, repeated operations resulted in a complete cure after eleven years.

In Case II, that of a nun 56 years of age, there were papillary, partly ulcerated vegetations on an infiltrated base, with infiltration of the apex of one lung. As the sputum did not show any tubercle bacilli the growth was extir-

pated. After a few pieces had been removed, epithelial carcinoma was recognized. The patient had been hoarse for nine years, so that it may be assumed that cancer had formed gradually on the basis of tuberculous vegetations in the larynx. An autopsy was not made.

In regard to the *differential diagnosis between papilloma pachydermia, tuberculosis and syphilis*, the author has drawn some most valuable deductions from observations made in his own cases. Against papilloma serve as points of differentiation the facts that, even if the pedicle is missing, they are attached superficially and never penetrate into the depths of the tissue. Infiltration and swelling of the matrix must be interpreted in favor of cancer; especially, too, the mobility of the vocal cord is not affected with a benignant papilloma, while the contrary usually holds good in carcinoma. Relapses occurring after endolaryngeal extirpations, are common with both the benignant and the malignant papilloma, but they take place very often in other locations than the one first affected. Furthermore, benignant papilloma recurs generally slowly; papillary cancer, quite rapidly.

Benignant papilloma is generally harder and more poorly supplied with blood, while the papillary cancer generally is softer and more succulent, so that its removal is attended with much greater bleeding. Finally, it must not be forgotten that cancer may later on develop from benignant, and that benignant papillary growths may be found in the neighborhood of an already developed cancer. *Pachydermia* generally is easily recognizable from its typical location, as it is usually on the vocal process (generally on both sides), while cancer begins but very rarely on the vocal process or on the interarytenoid fold. Rapid growth speaks for cancer. The mobility of the vocal cords, however, may suffer in both diseases quite early. The histological examination is, unfortunately, not always of decisive value, as the luxuriant proliferations of the epithelium in pachydermia may confuse if the sections are not made with great care. In one case pachydermia existed beside cancer. The decision may be most difficult when the pachydermia is situated in exceptional places, instead of at the posterior ends of the vocal cords (Case VI.). A

man of 52 had been rather hoarse for nine months. Beneath the left ventricular band, far in front, there was a white tumor of the size of a bean on a reddened base, partly covered by the ventricular band. The later moved freely. The opinions of the laryngologists were divided. He refused to have the growth removed for histological examination. Later on, laryngotomy was done. It proved to be pachydermia. The tumor started from the floor of the sinus of Morgagni. Carcioma can be differentiated from syphilis only with great difficulty sometimes. The early syphilitic manifestations are sufficiently characterized by their superficial location and relatively rapid course by the presence of other eruptions on the skin and pharyngeal mucous membrane. It is otherwise, however, with the late syphilitic forms, the gummatous tumors and ulcers; for circumscribed, round tumors and more diffuse infiltrations occur in syphilis and in cancer. In both they incline to break down; in both perichondritis may be present.

If ulcerations do not yet exist, which are quite characteristic (carcinomatous ulcers having irregular, uneven margins, and cauliflower vegetations quite often in their neighborhood; while the margins are smooth and even in syphilis) the diagnosis may be quite difficult, since one avoids extirpating syphilitic infiltrations even partially. In such cases anti-syphilitic medication alone is of assistance. It has, however, often been noted that iodide of potassium causes cancerous infiltrations, too, to decrease in size, probably at the expense of the surrounding inflammatory swelling. But this seeming retrogressive metamorphosis is known to continue only a short time; after awhile the treatment does not affect the size of the growth. In Case VIII, the infiltration of the left arytenoid cartilage which had already begun to break down, decreased markedly after mercury inunction, so that the ulcer even appeared clear and much smaller, and the dyspnea which was brought on by the fixation of both arytenoid cartilages, became much less, and the right vocal cord moved a little outward. This great improvement lasted for more than a month, and yet the disease was shown to be carcinoma.

In regard to therapy, the author has been taught by his experience that *laryngeal cancer is capable of cure in many*

cases, and that therapeutic nihilism is altogether out of place. It is well known that this form of cancer attacks the lymph glands comparatively late, especially in intrinsic cancer. Naturally, a permanent cure may be expected only when the disease is in its incipency. Radical methods of operation are indicated. More advanced cases, moreover, should not be left without treatment since removing the stenosis very often renders life longer and easier. Nor is it unjustifiable, when radical extirpation is impossible, to remove single portions of the neoplasm which are of particular annoyance; thus not only lessening the pains, especially in swallowing, but also prolonging the patient's life in rare cases. A patient was kept alive by Krieg for four years by repeated endolaryngeal removals of recurring carcinomatous masses, because she could not be induced to submit to an external operation. There seem, therefore, to be cases in which the cancer is not so very malignant. Nevertheless, the author advises a *radical operation as soon as the diagnosis of laryngeal cancer is established*, while complete removal of the cancerous tissue is possible, and the patient is strong enough for such, often quite serious, operations. As long as the cancer is situated within the cartilaginous structure, the outlook for complete cure by operation is quite promising. The neighboring lymph glands are usually not affected then. Extrinsic cancer, which involves the epiglottis, the ary-epiglottic folds, and the arytenoid cartilages, is less favorable because of the early implication of the lymph glands. Even in such cases permanent cure has been obtained by operative measures. These are either endolaryngeal or external. Tracheotomy is either only a preliminary act to the external operation or only a palliative against the dyspnea.

Endolaryngeal Extirpation. This method is of the utmost importance as an aid to diagnosis, in supplying pieces for histological diagnosis. It is usually innocuous, as it generally does not stimulate the growth. There are cases in which, to be sure, the cancer has been said to have grown more rapidly after an exploratory excision; but Fraenkel has shown that the growth of the laryngeal cancer is fitful, that it remains stationary often for many weeks, and then suddenly begins to spread. After 28 ex-

cisions, the author never perceived increase in the growth of the neoplasm but once. In this case the epithelial carcinoma which had involved only the free portion of the vocal cord had spread much farther back five days after the probatory excision. This should, therefore, be followed by the radical operation as soon as possible. In *inoperable cases* excisions of cauliflower vegetations in the interior of the larynx which obstructed breathing and swallowing, were often made, with no important or dangerous hemorrhage and with benefit to the patient. For the *radical* extirpation with forceps, double curettes, cold or galvanocautery snare, the endolaryngeal method has been employed quite early. Sendziak collected 32 such cases, in which complete cure was proven in 12.5 per cent; i. e., more than three years after the operation. In two of them relapses occurred, calling for another endolaryngeal operation. In one case a carcinomatous lymph gland was removed later by a surgeon, the larynx remaining quite free. Relative cure, lasting from one to three years, was noted three times; relapses three times; eleven cases were not observed long enough. The author confesses that he was not so fortunate. A patient operated on in 1897 seemed free from recurrence for five months, dying suddenly in an epileptic fit. In Case III, complete cure did not result. According also to Semon and others, permanent success is very rare. The endolaryngeal operation is only indicated in benignant, not diffuse forms, especially if they are limited to the vocal cords, and only when the patient can be kept under surveillance in order to remove any recurring diseased portion at once. As the malignancy cannot be recognized accurately even on histological examination, and complete extirpation by mouth can rarely be done, the endolaryngeal method should be employed only exceptionally.

Thryotomy. The author reports the results of his five cases, in three of which he operated himself. In the first (in which Billroth operated in 1889) the left vocal cord was removed. Recovery was prompt; the canula was removed on the eighth day; the voice was loud and strong. In 1893 tracheotomy had to be performed on account of increasing stenosis of the larynx without recurrence of the disease.

In 1895 it again appeared in the larynx, and in 1896 the lymph glands became enlarged; death in 1897. Here the cure lasted six years, when the cancer recurred, showing time cannot be definitely stated when a cure is to be accepted as permanent. One patient (operated on by Von Hacker) died on the fifth day from heart failure. The three others (operated on by the author) rallied from the operation; one has remained cured for more than three years; one, for two years; and on the hitherto healthy vocal cord of the third appeared, one year after the operation, a carcinomatous vegetation, which had to be removed lately by another operation. The great advantages of this method are that it is relatively devoid of danger, that the results as to cure are good, and mainly, that the voice is preserved, and swallowing possible without the necessity of a canula. The functional result is of great importance. One patient was able one year after the operation, and is still able, to lecture before societies; his larynx looks quite normal, there being a beautiful membrane-like cicatrix in the place of the excised vocal cord. The operation is, however, only promising when the cancer is in its incipency, and limited to one or the other vocal cord, while the rest of the larynx is perfectly free. The operation itself is preceded immediately by a tracheotomy. Billroth and the author prefer a Trendelenburg tampon canula; others, Hahn's sponge canula. The former can be more easily disinfected, while the latter is difficult to sterilize, and when left in situ for one or two days it becomes filled with secretions from the wound which are apt to decompose. Butlin and Semon, for this reason, remove the canula definitively at the end of the operation after carefully stopping the hemorrhage; it also guards against infection of the air passages from the dropping of the secretions, and against asphyctic attacks from the shifting of the iodoform gauze. The author generally replaced the tampon canula with a common canula after packing the larynx with iodoform gauze. The iodoform gauze was packed into a sack made of gauze, to keep it from slipping down. It is quite advantageous, after splitting the thyroid cartilage, to paint the interior of the larynx with a cocain solution, so that the violent attempts to cough and to gag stop, and the soft parts may be removed with ease.

Pharyngotomia Subhyoidea. This operation is only adapted for the cases in which neoplasm is situated either on the epiglottis, the ary-epiglottic folds and sometimes, in addition, on the base of the tongue. Sendziak collected eight cases, in five of which death resulted. Semon pronounces the operation easy, but must also report a fatal issue in his case. A man of 45 (Case XVI) consulted the author in September, 1897. There was a whitish, irregular tumor of the size of a walnut in the right pyriform sinus, originating seemingly from the right arytenoid cartilage; the latter, however, and the partly obscured right vocal cord were still freely movable; the tumor occupied, too, a part of the right ary-epiglottic fold and seemed to extend to the cricoid cartilage; voice and breathing were unimpaired. Parts excised proved to be carcinomatous. The operation was preceded by a high tracheotomy and a simple canula introduced; the base of the epiglottis was severed transversely, and then a vertical incision made through the skin at the junction of the thyroid cartilages. The right one of the three-cornered skin flaps thus formed was dissected off; the larynx was then turned to the left, the right upper corner of the thyroid cartilage bitten off, and the pharyngeal constrictors separated from the right thyroid cartilage. Then the larynx was drawn to the left and downward, and its lumen packed with iodoform gauze. On removing the right arytenoid cartilage with the ary-epiglottic fold, it was seen that the posterior pharyngeal wall was also occupied by a tumor, which was extirpated. The larynx was packed, the incision in the glottis closed by deep stitches, that in the skin by deep and superficial ones. In the external angle of the wound room was left for iodoform gauze. The view of the territory involved was good, and the extirpation done easily. The wound healed well. The patient was fed by a tube which was introduced into the oesophagus when wanted. The tampon was taken out of the wound after ten days. The canula was removed later, and the patient learned, with some difficulty, to swallow solid and liquid food, could go out, and felt quite well. Laryngoscopically, the epiglottis appeared drawn to the right; the glottis wide; the voice was good. In January, a small nodule developed on the ex-

terior surface of the right thyroid cartilage; later on the left plate. Both increased in size. The right ary-epiglottic fold was replaced by a grayish tumor, which encroached on the glottis, necessitating tracheotomy in March. In April the patient looked well, the larynx was broadened and adherent to glandular swellings on the right side. The patient can swallow only liquid food, must always wear the canula, and cannot speak above a whisper.

Pharyngotomia Laterals. This operation is indicated only when the *arytenoid cartilages* or the *ary-epiglottic folds*, *epiglottis*, or possibly the *tongue* at the same time, are affected. It was performed by Gussenbauer on a diabetic patient of the author's. June 17th, 1896, an incision was made from the angle of the left jaw to the middle of the thyroid cartilage, and the transverse incision above the hyoid bone. After ligating the lingual and several smaller arteries, the lateral pharyngeal cavity was accessible; the tumor was easily exposed. The surrounding tissues were ligated en masse and the tumor removed. A strip of gauze was introduced and the wound sewed, the Trendelenburg canula remaining for three days. In the laryngoscope the right half of the larynx appeared free, and the left vocal cord freely movable. As the patient could breathe freely on closing the tracheotomy opening the canula was definitely removed. To the 24th the condition of the patient was good; the tube was always introduced without discomfort to feed him. On this day, however, breathing and pulse were accelerated. The wound in the neck, which was partly agglutinated, began to separate and to show diphtheritic deposits. The patient died in coma on the 27th, the sugar in the urine being 3 per cent.

Laryngotomia Transversalis. The operation devised by Gersuny consists in splitting the thyroid plates by a horizontal incision a little above the attachment of the vocal cord, and in then pulling apart the two parts of the larynx in order to obtain a good view of the interior of the larynx. It has rarely been performed.

Partial Resection of the Larynx. The results of this operation in the twelve cases observed by the author were: One patient was still completely cured two years after the operation; three died five, six and ten days later from

hemorrhage from the carotid or delirium tremens or pyemia; one died one month later from fetid pleuro-pneumonia; one was discharged cured after two months without being heard from again; one died one year later from pneumonia, without suffering from recurrence. Recurrence set in five times, generally in the first two months. In these cases of rapid recurrence the cancer was usually very diffuse, so that, in several cases, nearly the whole larynx had to be removed. The glands, too, were generally involved.

Complete Extirpation. Statistics show that the results are better as the date of the operation is more recent, because of the improvements in the technique. The author reports one case, operated on by Hacker. The patient was completely cured, wore the artificial larynx already; but a recurrence set in in the glands of the neck. Another operation could not stop the progress of the disease. (Case IV.) *Morgenthau.*

Partial Resection of the Larynx.

470. CISNEROS (*Revista de Medicina y Cirugia Practicas—O Sligo Medica*, Madrid, May 29, 1898.) reports a successful case in a physician 50 years of age. The patient had been aphonic since July, 1897; no medicine helping him, he submitted to an operation. He was a tall, robust man, with no bad ancestral or personal history; lungs sound; the only symptom was the loss of voice, and even this would not have worried him were it not that his professional work demanded a good voice. The laryngoscope showed a reddish tumor occupying the left vocal cord extending to the ventricular band of the same side and paralyzing the cord. Externally there was nothing abnormal, nor was respiration or deglutition impeded. A small excised piece of the tumor showed (by Ramon y Cajl) that it was an epitheloma.

On January 13, 1898, he was operated on, and the left half of the larynx was extirpated. Recovery was uneventful. *Hale.*

Syringomyelia with Grave Laryngeal Troubles.

471. DRAULT, A. (*Annales des Maladies de l'Oreille du Lar. du Nez. et du Phar.*, No. 5, 1898.) Laryngeal

troubles are very rare in syringomyelia. A woman of twenty-two had large anesthetic and hyperesthetic areas and had besides suffered from great dyspnea for which a complete paralysis of the dilators of the glottis was found responsible. She had moreover incomplete paralysis of the soft palate. Quite a number of other symptoms of syringomyelia were absent. Still the author insists upon his diagnosis.

Holinger.

Obstructive Laryngeal Affections and their Influences upon Chloroform Anesthesia.

472. GARDNER, H. B. (*Lancet*, June, 1898.) It is contended by the writer that the fear of giving an anesthetic to patients suffering from any form of laryngeal obstruction is groundless. On the contrary, the majority of such patients pass through the anesthesia remarkably well and the element of asphyxia produced by a partial mechanical obstruction of some weeks duration is of positive value in the production of safe anesthesia. In support of his position a report is given of the following cases in which chloroform was administered: Double abductor paralysis of the vocal cords, multiple papillomata of the larynx, epithelioma of the larynx, tuberculous disease of the thyroid cartilage.

Loeb.

Two Cases of Laryngeal Stenosis.

573. GOMEZ, F. VASQUEZ (*Gazeta Medica de Mexico*, April 15, 1898.), two cases are reported:

1. Girl of 15 years, who had had small pox eight years ago, and subsequent attacks of pneumonia and nasal catarrh. All functions now normal except phonation which was growing quite bad. Laryngoscope shows cicatricial adhesions between anterior edges of vocal cords half way across. An attack of asphyxia drove the patient to submit to an operation of tracheotomy, which was followed two weeks later by gradual dilatation of the larynx by Schötler's and Brown's instruments. Result, complete success; closure of tracheal wound and normal phonation.

2. Woman of 38, with cicatricial syphilitic adhesions between nearly the whole extent of vocal cords. No signs of secondary syphilitic lesions. Tracheotomy was per-

formed and gradual dilatation. This, with active antiluetic treatment, cured, and normal phonation was secured after closure of tracheotomy wound. *Hale.*

Foreign Body in the Air Passages.

474. GOUGENHEIM, Lombard. (*Annales des Maladies de l'Oreille, du Larynx, du Nez. et du Phar.*, No. 6, June, 1898.) Foreign body in the air passages, removed by tracheotomy. Recovery.

A man of 40 inhaled, in sleeping, a plate with one tooth. The plate was seen below the vocal cords and removed by tracheotomy. *Holinger.*

The Removal of a Foreign Body from the Trachea.

475. HORN, A. J. (*Journ. American Med. Ass'n*, July 16, 1898.) A boy of 12 years suffering from rapid breathing and a hacking cough, gave a history of having swallowed a pin sometime before. A low tracheotomy was performed and the point of the pin found at the bifurcation and head of the left bronchial tube, from which it was removed by long forceps. The patient made a complete recovery. The X-rays were used in this case three times without locating the pin.

[A metallic substance, such as a pin, furnishes the best material for examination by means of the X-rays, and the lack of success in this case must have been due to some defect in carrying out the method. Scheppegegrell.]

Scheppegegrell.

Classification of Voices.

476. JOAL. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 20, May 14, 1898.) Amongst the singers of each sex there are three groups of voices. In man, are tenor, barytone and bass. In woman, soprano, mezzo-soprano, and contralto. Up to the present time it was only for the professor of singing to classify the voices of his scholars. The author thinks that a great number of errors could be avoided if the teacher would combine with his own the advice of the laryngologist who could base his own judgment on the examination of the vocal cords, the resounding cavities and apparatus, as well as on the power of respiration. Joel founds this assertion on 20 years of experience, and believes that a great number of

spoiled voices might be saved. The author gives a great number of names of singers some of whom had a very small range of their voices, while others, especially ladies, had an extremely large range. Among the tenors he distinguishes strong tenor, tenor of the opera, and tenor of the comic opera. He gives the peculiarities required of each voice and the roles in the different operas calling for it. The same of barytone and bass. He distinguishes a singing bass and a noble bass and gives the range of each.

The soprano voices are divided into light soprano and dramatic soprano, and the roles suitable for each are mentioned as well as the names of different singers who well filled those roles. The same plan with the range and extension of voice is given for mezzo-soprano and contralto. For classification the range of the voice is secondary to the sound (timbre). The author protests against the tendency of many professors of singing to make something else out of the voices of their scholars than what they are; they ought to merely educate the voice itself. He names a list of singers who have been wrongly classed. After this the main points are given which are directive for Joal in classing the voices. He considers not only the length of the vocal cords, the larynx, the pharynx, etc., but adds to that the general appearance of the person. The external characteristics of tenors are: the nose is small, the face is flat and square, neck short and strong, the body round, little marked, more of a female type, the genitals are moderately developed, the capacity of the thorax rather small. The bass is the opposite in every way. The barytones are between these. The spirometric examinations are important. For female voices similar points are brought up. At the end several instances are given where the voices were misclassified, which error was corrected by the laryngologist. *Holinger.*

Intubation in Membranous Croup.

477. LEDBETTER, S. D. (*Laryngoscope*, April, 1898.)
Of forty-eight cases eighteen ($37\frac{1}{2}$ per cent.) recovered.
Of the eight antitoxine cases five (62.5 per cent.) recovered.
Loeb.

Nitroglycerin in Spasmodic Croup.

478. MARSHALL, G. G. (*Atlantic Med. Weekly*, May 28, 1898.) The author has found in nitroglycerine an ideal remedy for spasmodic croup where steam inhalations and emetics fail, or where they depress too much to bear repetition. He recommends it to be given in small doses frequently repeated. To children from five to ten months old he gives from one ten-hundredth to one six-hundredth of a grain, repeated in from five to ten minutes if no effect is noticable. Usually in ten minutes there is marked relief in the dyspnea and general appearance of the child. By repeating these small doses from every fifteen minutes to once in one to three hours, the laryngeal spasms are controlled. Sometimes it is not necessary to repeat it oftener than once or twice; at other times the remedy has to be continued at more or less frequent intervals for two or three days. *Scheppegrell.*

Laryngeal Vertigo.

479. MULHALL, J. C. (*Laryngoscope*, March, 1898.) A man, aet. 47 years, presented the following conditions: Florid complexion, phlegmatic temperament, pulse 90, a trifle irregular, small and compressible, urine acid, specific gravity 1029 and loaded with phosphates, flesh soft and flabby, chest narrow, abdomen large and pendulous. He presented what the writer calls hypernutrition, indulging in meat three times a day, eggs in abundance, large quantities of bread and potatoes. His bowels moved five or six times a day, but the total quantity was not more than one full action. Since he was seven years of age, he had been subject to a winter cough which was paroxysmal and followed by the ejection of a small amount of white viscid sputum. The vertigo appeared in October or November, 1895. In December of that year he had a severe attack in which his respiration seemed to cease while he became unconscious. Three further attacks occurred that winter. For three months previous to consulting with the writer, he had almost daily attacks of cough followed by unconsciousness. The attacks are described as beginning with the appearance of a peculiar indescribable facies, eyelids dilated, eyeballs rolled upward while he becomes dull and listless. After a full

minute or two, the patient indulges in three short dry coughs, each lower in pitch than the preceding one, followed invariably by unconsciousness. He ceases to breathe, his face becomes bluish-red, his whole body becomes somewhat rigid and after five to twenty seconds a long inspiration concludes the attack. There has never been an involuntary cry, escape of urine, biting of the tongue, convulsive movement or previous laryngeal or sublaryngeal tickling. Acting upon the writer's theory that uric acid explosions were the cause of attacks, he was put upon anti-lithemic treatment, consisting largely of rigid diet, cold friction to the skin, calisthenics and the substitution of manual labor in the open air for a certain amount of intellectual work. After ten weeks he had only two daily movements of the bowels, his asthma disappeared, his cough, which was fifty per cent. better than it had been in twenty years, lost its dry paroxysmal nature, the sputum being ejected without effort. There had been no laryngeal attacks for eight weeks. The following year no attacks appeared.

The writer considers that the first phenomenon is central, most probably a vaso-motor spasm about the respiratory center and that it is the central irritation which causes first the laryngeal tickling or short, dry coughs and then the glottic spasm as well as that of the great abdominal muscles. The insensibilities follow instantly the glottic spasm and cannot, therefore, be due to the cerebral turgescence caused by intra-thoracic pressure. In this case at least the uric acid streams about the vagus centers in a man suffering from nervous exhaustion were responsible for the attacks.

Loeb.

A Contribution to the Endolaryngeal Treatment of Laryngeal Carcinoma.

480. DR. NOLTENIUS, Bremen, Germany. (*Frankel's Archiv.* V, III, 1, 128.) The patient, a man of 59, had been operated upon twice within three years, by the author, for a recurring polypus on the right vocal cord, a little in front of the vocal process. On his return, a tumor was found which was irregular and merged into the surrounding tissue. More of it was removed with Landgraf's double curette and sent to the Pathological Institute of

the University of Göttingen, where it was pronounced carcinomatous. Encouraged by the brilliant results reported by B. Fraenkel (*Ibid*, VII, 362) the author concluded to deviate from his usual practice of referring laryngeal carcinomas to a surgeon for partial or complete extirpation of the larynx, and to attempt the removal of the growth by the natural passage. This was done nearly completely by entering with Landgraf's double curette several times, on November 30, 1898. The hemorrhage was slight and did not hinder the patient from walking to the private clinic shortly afterward. Ice applied internally and externally stopped the bleeding entirely within a short time. In two more sittings the same instrument was used, until the whole mass seemed to be removed (altogether weighing about one gramme). The hemorrhage was so slight on the last day that the author remarked it to his assistant. The patient left the office in good condition after expectorating some bloody sputum. Half an hour later the author was called to him in great haste. He had either expectorated or vomited large masses of mostly coagulated blood, while loud tracheal rales could be heard from afar. It immediately became evident that a violent secondary hemorrhage must have set in, the blood flowing down the trachea which was still partially anesthetized by the cocanization. It appeared too risky to try laryngoscopy while the pulse was so poor and the breathing so labored. Application of ice, both internally and externally, and an injection of ergotin, into the neck diminished the flow of blood, but it was apparent that the trachea and larynx must be opened, in order to reach the bleeding points and to guard against asphyxia. Dr. Sattler split the trachea and larynx, and removed the large blood coagulated from the trachea by suction by means of a thick rubber tube. This relieved the respiratory embarrassment at once. As source of the bleeding two excavations of the size of a split pea were found in the region of the completely removed right vocal cord, two dark red streams flowing continuously down the trachea. No spurting artery could be discovered. A canula was introduced, and the interior of the larynx packed with sterilized gauze. The patient did so well for

two days that the canula could be removed. During the night, however, the pulse rate increased and the breathing became difficult. In the morning he suddenly died. The larynx was examined post-mortem at Göttingen, whence a report was made: no vestige of carcinomatous disease could be discovered, nor microscopically or macroscopically any cause for the severe hemorrhage. The author expresses his conviction that this is not an instance of the transition of a benignant to a malignant tumor, but that the growth was cancerous from its incipency. His case proves, however, that it is possible completely to extirpate a carcinoma by endolaryngeal methods, although he cannot now endorse Fraenkel's statement, that the operation is devoid of all danger. *Morgenthau.*

The Nervous Fibres of the Larynx which Preside Over the Functions of Respiration and Phonation.

481. ONODI, Budapest. Translated by Jankelevitch. Read before the academy of science of Budapest. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 17, April 23, 1898.) In the introduction to this paper the author states that the nerves directing the dilators of the glottis lose their faculty of electric excitation and conduction before the constrictors of the glottis. Other authors confirmed this. A number of anatomical investigators succeeded in anatomically isolating the different fibres. The recurrent never can be divided in a lateral and medial branch. The first one gives branches to the lateral muscles and the thyro-arytenoid, the second to the crico arytenoid posterior and the transversus.

It is, however, very difficult to isolate the respiratory and phonatory branches. The stem of the recurrent nerve contains, besides fibres controlling contraction and dilatation, fibres which go to the trachea and esophagus, and others which come from the sympathetic and the nervus laryng. sup. The researches have been made on the ox, the dog and man. In the ox the isolation of the different fibres in the stem of the recurrent nerve is difficult, but the branches give the condition very plainly. The fibres of phonation only are glued to those of respiration. Yet the fibres of phonation alone form the plexus, not those of respiration. In dogs the recurrent nerve runs to the

tracheal part of the sup. laryngeal nerve. They are loosely connected and the laryngeal nerve sends very fine branches to the trachea. Toward the larynx conditions are more complicated. The author gives more explicitly the conditions in men and in horses. In the horse two facts have been proved: 1. In the trunk of the recurrent and vagus there are isolated fibres for respiration and phonation. 2. There are very close relations between the respiratory fibres with the sympathetic and heart fibres. Semon saw the nervous fibres for respiration and those for phonation proceed separately from the nervous centers to the larynx. This fact has been experimentally confirmed by Russel and anatomically by the author. The electric irritation of the branches which communicate between the brachial plexus and the sympathetic nerve, and the region between the upper thoracic and lowest cervical ganglion, produces a median position of the corresponding vocal cord. The author will try to find out the physiologic value of these anatomical facts.

Holinger.

Paralysis of the Left Recurrent Laryngeal Nerve in Mitral Stenosis.

482. OSLER, W. (*Maryland Med. Journal*, June 4, 1898.) Two cases of paralysis of the left recurrent laryngeal nerve are reported in which there was absence of aneurisms but well marked signs of mitral stenosis.

Scheppegrell.

The Importance of the Roentgen Rays in the Diagnosis of Intra-Thoracic Tumors of Interest to Laryngologists.

483. ALBERT ROSENBERG, Berlin. (*Fraenkel's Arch.* VIII, 1, 1.) As little as the Roentgen rays have realized the expectations of their importance in laryngeal diseases, especially in the differentiation of malignant growths in that region, of as much value do they prove to the laryngologists in the cases in which intrathoracic growths cause stenosis of the respiratory and alimentary canals, and paralysis of the vocal cords. The full reports of twelve cases are preceded by some general remarks. On the fluoroscope are seen the vertebral, or rather sternal shadow, which is about three or four centimeters wide, and usually that of the aorta to the left of the sternum above the pulsating shadow of the heart. Sometimes the latter reaches

but little beyond the right sternal margin. These relations correspond with those described in Luschka's classic: "The organs of the human thorax, and their position." They are, however, only the result of the averages drawn from many varieties and subject to individual difference; a factor to be considered in regard to the pulsating aortic shadow. The density of the shadow varies, being, according to the general acceptance, in proportion to the specific weight of the tissue which cannot be penetrated by the rays; so that, for instance, lymphomata, which are of lesser specific weight, throw a less intense shadow than, for instance, a carcinoma of the same thickness. This is, to be sure, not an absolute rule without exceptions, but the combined result of observations. Of course, an intense shadow may be made within a lymphoma shadow by calcifications in the interior of the growth. The shape of the shadow is of greater diagnostic significance.

In aneurysma a characteristic shape is seen, namely, a nearly round shadow, corresponding to a section of the periphery of a circle or of an ellipse, and pulsating *in all directions*. This last qualification will guard against some mistakes, as shown later on. In cases of solid tumors, however, such as those of the mediastinum, the shapes differ; generally there is a shadow bounded by rather straight lines, or irregular shapes; never, or hardly ever, one as round as in aneurysma, from which is distinguished, moreover, by absence of pulsation in all directions.

Oesophageal tumors are usually seen under the sternum and are generally noticeable because the sternal shadow is enlarged to one side or both. In retrosternal goiters the shadow moves upward in the act of swallowing. In one case a pulsating shadow seen to the right and left of the sternum aroused a suspicion of aneurysma, but post-mortem a carcinoma of the oesophagus was found, with the aorta somewhat enlarged cylindrically. If, namely, tumors in the posterior mediastinum compress the aorta from the front and rear, stasis and dilatation set in; producing on the fluoroscope, an enlargement of the aortic shadow, which pulsates on both sides of the sternum. *Patency of Botalli's duct* shows enlargement of the shadow corresponding to the aorta. Aside from the rarity of this anom-

aly, the clinical manifestations lead to the diagnosis. It is hardly necessary to warn against mistaking the *respiratory movements* of the thorax for pulsations, the outlines of the aortic shadow seeming to change their relations to the shadow of the ribs, or, rather, vice versa. It is best to have the patient take a deep inspiration and then hold his breath, because the respiratory movements are thus excluded and, furthermore, a better and clearer view is thus obtained as the lungs are inflated and the ribs farther apart. Pulsations can naturally be seen more perfectly on the fluoroscope than on the photograph, because the vessel which is enlarged in the diastole is not exposed as long on the latter, but interrupted always by the systolic pause. On it, therefore, the systolic contour is seen as an intense shadow while the diastole is marked only quite faintly. The thorax must be examined both from the front and the rear, and sometimes also from the sides. When the patient faces the Roentgen apparatus a growth situated near the anterior thoracic wall appears much larger on the fluoroscope placed on his back than when he stands with his back to the apparatus. Thus the shadow of an aneurysma occupying the ascending or concave part of the aorta appears larger and distincter on the back because it is situated closer to the anterior than the posterior wall of the thorax. The actinoscopic examination may conflict with the results obtained by our common method. The areas of dulness do not at all always tally with the shadows. So the Roentgen ray may enlighten us in cases where aneurysms of the thoracic aorta cause stenosis of the greater air passages and as a result lobar pneumonia, indurative pneumonia, etc., the dulness of which complicates considerably the diagnosis of aneurysm. The cases reported are five of aneurysm, two of retrosternal goiter, three of retrosternal tumor or mediastinal tumor, and two of carcinoma of the esophagus.

Morgenthau.

A Case of Congenital Web Between the Vocal Cords, Associated with Coloboma of the Left Upper Eyelid.

484. SEMON, FELIX. (*British Med. Journal*, May 28, 1898.) Congenital webs between the vocal bands are rare. More commonly the webs are acquired, traumatism and syphilis being the most usual causes. The origin of this

congenital malformation is still shrouded in considerable obscurity; the views of Roth, however, seem the most plausible. He showed that in the period of embryonic development, the upper part of the air-tube is glued together. The milder cases, those in which there are no respiratory affections and no alteration of the voice, require no interference. On the contrary, however, when there is total loss of voice, and persistent paroxysmal dyspnoes, surgical intervention is almost imperative. The selection of a mode of treatment will depend upon the thickness of the diaphragm, the patient's age and power of co-operation, and the tendency to readhesion during the process of removal.

From the satisfactory results obtained in the case reported, Semon recommends that the intra-laryngeal method should be given a trial before recourse to thyrotomy. The growth may be removed with Mackenzie's cutting-forceps, or, as in the case reported, by puncture with the electro-cautery.

Scheppegrell.

Tuberculous Laryngitis.

485. SISSON, E. O. (*Medical News*, April 9, 1898.) In primary tuberculosis of the larynx there are found in the mucous membrane, singly or in groups, small roundish nodules, sometimes attaining the size of a pin-head. In secondary tuberculosis of the larynx there is first a stage of infiltration followed by ulceration.

In regard to treatment, the application of lactic acid to the ulceration, with or without previous curetting, as suggested by Heryng and Krause, has met with much favor among laryngologists. Paramono-chlorphenol has been found useful by Hedderich. Hajek recommends insufflation of iodo. Scheppegrell has introduced cupric cataphoresis, and reports one case cured and many benefitted by this method. Tracheotomy is to be recommended only in cases in which life is threatened by laryngeal stenosis.

From a study of existing literature, the following conclusions are submitted:

1. That to the microscopic investigations in tuberculous laryngitis, and to them alone, is due the present thorough knowledge of its pathology.

2. That no one line of treatment can be laid down at the present time.

3. That there is too great a tendency on the part of the medical profession at large to place this disease in the list of incurable affections, and to use only palliative treatment, and not take the interest that they should in the reports from the few untiring investigators, who, in the face of apparently insurmountable obstacles, are endeavoring to find some cure for this dreaded malady.

When the progress which has been made thus far is considered, we are justified in predicting that the time is not far distant when laryngeal tuberculosis will take its place in the list of curable diseases. *Scheppegrell.*

Notes of Two Cases of Foreign Bodies in the Air Passages.

486. SWIFT, H. (*Aust. Med. Gazette*, April 20, 1898.) In the first case, a child of two years while playing on the floor was suddenly seized with a violent fit of coughing with signs of dyspnoea. The mother believed that the child had swallowed a piece of bone or meat. A tracheotomy was made but failed to find the foreign body. On the fifth day the child developed an acute dyspnoea, which proved fatal.

At the post-mortem a small screw was found just above the tracheotomy wound.

The second case, a child of three years, had inspired a piece of nut shell. Tracheotomy gave negative results. A tube was inserted and the foreign body was afterward expelled through the wound. *Scheppegrell.*

Acute Subglottic Laryngitis in Grippe.

487. PAUL TISSIER. (*Annales des Maladies de l'Orielle, du Lar. du Nez et du Phar.*, No. 5, May, 1898.) In grippe several forms of laryngitis are known; hyperemic, catarrhal, hemorrhagic and fibrinous. Furthermore, paralysis of some groups of muscles of the larynx is reported. The swelling of the mucous membrane even required tracheotomy. Usually a more simple treatment brings relief. Absolute rest, hot applications and steam inhalations with some drops of chloroform are recommended. *Holinger.*

Foreign Bodies in the Air Passages.

488. VERCO, J. C. (*Aust. Med. Gazette*, May 20, 1898.)

A child of three years had inspired a watermelon seed, which produced a strangling cough and dyspnoea. The trachea was opened, and with the first violent cough the seed was expired.

The second case, a boy of three years, also inspired a watermelon seed. Tracheotomy was refused, and after suffering from the symptoms of obstruction and tracheal irritation for five months, the seed was expelled in a fit of violent coughing.

The third case, a woman of 27 years, suffered from fever and a severe cough. For a long time all therapeutic agents proved unavailing, until finally the patient coughed up a tooth, which had evidently existed in the air passage for twelve weeks. It had apparently lodged in one of the smaller tubes going into the lower lobe of the right lung, and had excited a local pleuro-pneumonia.

The fourth case was a woman of 39 years, who had inspired a tooth while under nitrous-oxide anesthesia. The patient soon developed signs of consolidation of the right lung. Three weeks afterward, the tooth was coughed up. The patient, however, continued to grow worse. There was an abundance of muco-purulent sputum of a fetid odor, and she evidently succumbed to suffocation, following the flooding of her bronchi with pus from the bursting of a collection of matter either in her lung or pleural cavity.

Scheppegregell.

Papilloma of the Epiglottis.

489. WATSON, W. T. (*Maryland Med. Journal*, March 19, 1898.) The patient, a girl of 16 years, was examined and a large warty-looking mass was seen, projecting from the posterior surface of the epiglottis. The voice was but little altered and deglutition was fairly good. On several occasions, pieces of the tumor had been coughed up since she was three years of age. Microscopic section showed it to be papilloma.

Scheppegregell.

Two Cases of Foreign Bodies in the Air Passages.

490. WIGG, A. E. (*Aust. Med. Gazette*, April 20, 1898.) The first case was a boy of four years, who was suddenly seized with choking while eating his breakfast. The trachea was opened and a piece of sheep-rib, triangular

in shape and about three-eighths or an inch in its greater length, was removed.

In the second case, a lady of 30 years inspired a tooth while being operated upon under ether. In spite of treatment the patient succumbed from exhaustion. An autopsy showed a large empty empyema of the right side communicating with a small abscess in the middle lower lobe of the right lung, and this again communicating with the bronchus. Near the abscess the decayed bicuspid tooth was found. *Scheppegrell.*

Foreign Body in the Air Passage.

491. WIGG, A. E. (*Aust. Med. Gazette*, May 20, 1898.)

To avoid the possibility of a tooth or blood lodging in the air passages during a dental operation, the author suggests placing the patient on his back on a table and allowing the head and neck to hang over it until the face is vertical. *Scheppegrell.*

Remarks on Rheumatic and Gouty Affections of the Throat.

492. WILLIAMS, P. W. (*Laryngoscope*, April, 1898.)

In the rheumatic affections of the throat the writer has been unable to observe any characteristic features. In the larynx there seems to be a tendency to affect the crico-arytenoid joint, and though the swelling may not be apparent, the movements of the corresponding vocal cord are impaired and more or less permanent fixation is liable to result. Gouty affections of the throat are more commonly encountered. There may be acute, causing pain, odynphagia and various inflammatory manifestations, or chronic, causing tickling of the lateral walls of the pharynx, a sense of pain of a darting character and shooting up to the ears, irritating cough and some external tendences about the larynx. Small tophi have been observed in the larynx and deposits have been found in the pharynx. *Loeb.*

V.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

Mental Phases of Tuberculosis.

493. ALEXANDER, H. C. B. (*Journ. American Med. Ass'n*, June 11, 1898.) The psychology of phthisis has

long been analyzed by alienists who not only recognize *spes phthisica* as a common phenomena and as an expression of exhaustion removing the checks on emotional mobility, but recognize likewise another symptom which underlies much of the difficulty of treating seemingly sane victims of pulmonary tuberculosis.

This mental symptom which is exceedingly marked, so much so, that it always arouses a suspicion of tuberculosis as a complication of psychosis, at least is suspicious. The general mental state of the phthisical is essentially that of the primary confusional lunatic plus emotional mobility. As Spitzka has remarked, there is usually altering depression, emotional mobility, intensification of the egotism common to invalids, and a suspicious mental state. This underlies the refusal of, and changes in medicinal treatment, if the patient be at home, and the refusal of food if the patient be in a hospital for the insane. The most prominent and decided symptom which appears in the insane, in the larval stage of the disease, is this suspicion. In them, for this reason, physical examination is often difficult, and cough, hectic fever, etc., are often absent.

According to Clouston, it is possible to predict tuberculosis from the mental symptoms. If these cases have been acute at first, the acute stage is of short duration and passes rapidly into an irritable, excitable, sullen and suspicious state. There is a want of fixity of purpose in the mental condition. The intellect at first is not so much obscured as there is great disinclination to exert it. There are occasional unaccountable attacks of excitement, lasting only for a short time, unprovoked paroxysms of irritability and passion in a subdued form. There is a disinclination to enter into any kind of amusement or continuous work. If this be overcome there is no interest manifest in employment. If there be any one single tendency characteristic of these cases it is to be suspicious. In many cases this insanity commences insiduously and shows itself by an alteration of conduct and affections, an increased irritability and waywardness. There are fitful flashes of intellectual brightness.

The author found from the results of autopsy among the

negroes, who are peculiarly prone to tuberculosis of a rapidly fatal type, that while more than one-half of the patients in the insane hospital suffering from tuberculosis, one-third of those who contract the disease make a good stand against it, either entirely recovering or living for a term of years without being injuriously affected by small, though unhealed foci of tuberculosis, or dying from some other cause in the course of a very mild and chronic form of the disease. *Scheppepegrell.*

Cough Due to Causes Outside the Lungs.

494. BARNHILL, J. F. (*Laryngoscope*, Feb., 1898.) The following are the principal reflex causes:

1. Impacted cerumen, foreign body or cholesteatoma.
2. Nasal hypertrophies, septal spurs, polypi, foreign bodies and atrophic rhinitis.
3. Adenoids, rhino-pharyngeal polypi and neoplasms.
4. Elongated uvula, granular pharyngitis, hypertrophy and other diseases of the tonsils.
5. Hypertrophied lingual tonsils, varicose veins, a too greatly curved epiglottis.
6. Mucus or pus in the larynx, congestion or thickening of the laryngeal mucous membranes, papilloma or other growths.
7. Pressure or irritation of the vagi. *Loeb.*

Exophthalmic Goitre, Treatment by Means of Galvanization.

495. BERTRAN, E. (*American Medico-Surgical Bulletin*, June 10, 1898.) The constant galvanic current has given the good results in the treatment of Basedow's disease. The principal advantages obtained with this electrotherapeutic method were the diminution or disappearance of the exophthalmus, gradual improvement of the general condition, diminution of the disordered cardiac innervation, and finally diminution in volume of the hypertrophied thyroid body. *Scheppepegrell.*

A New Symptom in Peripheral Facial Paralysis.

496. BORDIER and FRENKEL. (*American Medico-Surgical Bulletin*, Feb. 25, 1898.) When a patient with this type of facial paralysis closes the eyes, the lid on the unaffected side closes energetically, while that on the diseased side but slightly, showing that the globe of the

eye is at the same time raised slightly and somewhat to the outer side. In other words, the patient cannot shut the eye on the diseased side without raising the globe at the same time in an upward and outward direction. This symptom it is claimed is absent in facial paralysis of central origin.

Scheppegrell.

Open-Air Treatment of Pulmonary Tuberculosis as Practiced in German Sanatoria.

497. BREHMER, (*British Med. Journal*, May 21, 1898.) The author, who was the originator of the sanatorium idea, established the following laws:

1. In order to avoid dust, the institutions should be away from public traffic.

2. The air should be dry and aseptic, and yet there should be an abundant rainfall.

The main point of the treatment is that the patient should spend most of his time in the open air, protected from the weather, usually remaining in the prone position.

Scheppegrell.

A New Instrument for Removing Coins and Similar Shaped Foreign Bodies When Lodged in the Oesophagus.

498. BROWN, M. L. (*Boston Med. and Surg. Journal*, June 2, 1898.) The instrument consists of a twisted stem or rod joined to a flattened handle, together about fifteen inches long. One end of the rod is bifurcated three inches, forming a closed loop. This loop is bent upon itself into two parallel loops an inch long and about half an inch apart, the part joining the parallel loops forming the beak of the instrument, which is placed at an angle of 45 degrees to the plane of the posterior parts of the loops and one-quarter of an inch from that plane.

The coin or similar shaped foreign body is caught by the beak, deflected into the parallel loops, and upon withdrawing the instrument the coin is drawn up with it.

Scheppegrell.

An Unusual Oesophageal Anomaly.

499. DAVID, E. L. (*American Practitioner and News*, May 1, 1898.) The patient was a well-developed man of 35, who had been a lunatic for years. There were only two large openings in the diaphragm, the vena cava and

the aortic; these occupied their normal positions, but no where was there an oesophageal opening.

The oesophagus passed through the aortic opening, between the crura in front of the body of the twelfth dorsal vertebra, then forward and to the left and entered the stomach opposite the first lumbar vertebra; the stomach was lower and more to the right than common, extending markedly into the right hypochondrium.

In passing through the opening, the oesophagus was in front of the aorta and had the right and left pneumogastric nerves on either side. They were not separated by the crura of the diaphragm, nor in any manner was there a resemblance of a partition.

Besides, above there existed quite a number of more common anomalies, as the superior thyroid artery rising from the common carotid; the axillary artery dividing into two branches, the deep one taking the place of the brachial artery and becoming the radial, and the superficial branch becoming the ulnar; the obturator artery arising from the deep epigastric. *Scheppegrell.*

Tuberculosis and its Treatment by the Later Methods.

500. DEARDOFF, A. G. (*Jour. Amer. Med. Ass'n*, July 23, 1898.) The use of anti-tubercular serum is advocated in addition to general tonic and hygienic treatment. When pus exists in the system, the anti-streptococcic serum is alternated with the anti-tubercular serum. Twelve clinical cases are reported, with the following results:

Five cases, third stage: one died, one somewhat benefitted, one greatly benefitted, one well, one living six months after being given up to die at any time.

Three cases second stage: one greatly improved, one well over one year, one improving.

Four cases, third stage: four well. *Scheppegrell.*

Opiates in the Treatment of Bronchitis.

501. ENGLISH, W. T. (*Jour. American Med. Ass'n*, June 11, 1898.) Among the results obtained are the reduction of irritation, alteration as to the amount of secretion, and removal of sleeplessness. Opium in the form of Dover's powder is advised, preferable at bed time.

[Opiates are being used less and less each year in the treatment of bronchitis and other affections of the respiratory passages. They should never be used as a routine measure and only when there is some positive indication. Scheppegrell.] *Scheppegrell.*

A New Electric Head Lamp for use with the Edison Current.

502. GLEASON, E. B. (*Laryngoscope*, April, 1898.) The light may be used with entire satisfaction during the brightest day, the cavities being fully illuminated. The electric lamp employed is of the candelabrum variety with a long incandescent film no part of which is accurately focused upon the field of operation by the condensing lens of the lamp, obviating the deep shadows. *Loeb.*

**Oesophagotomy for Jackstone in the Upper Oesophagus;
Death from Exhaustion.**

503. KEEN, W. W. (*Therapeutic Gazette*, April 15, 1898.) A child of 13 years had swallowed a jackstone, which was shown by means of a skiagraph to be in the oesophagus opposite the body of the fourth and fifth cervical vertebrae. As efforts through the normal passage proved unavailing, an oesophagotomy was performed, and the jackstone removed. The tissues of the oesophagus around the foreign body had already commenced to slough. The child died apparently from exhaustion. *Scheppegrell.*

Rhinology, Laryngology and Otology in France.

504. KING, G. (*Laryngoscope*, May, 1898.) In Bordeaux under Professor Moure a large clinic is sustained by the medical faculty. From Jan. 1 to Nov. 25, 1897, the number of consultations was 8,685, of which 5,124 were for the ear and nose and 3,561 for the larynx. 582 operations were performed. For ordinary purposes gas light is employed, but for intra-nasal and intra-laryngeal operations the electric head light is used. *Loeb.*

Beechwood Creosote in the Treatment of Phthisis.

505. LAMPLOUGH, CHAS. (*British Medical Journal*, May, 28, 1898.) As the result of the authors investigation of 100 cases of pulmonary tuberculosis treated with large doses of beechwood creosote, he offers the following conclusions:

1. The best beachwood creosote can be given with benefit, in amounts varying from 120 to 240 minims daily, in cases of pulmonary tuberculosis.

2. The drug is best administered in cod liver oil or in a spirituous solution, and in some cases the "creosote chamber" or oro-nasal inhaler may be ordered in addition, with advantage.

3. The dose should be small at first, but it can be rapidly increased to 40 minims three times daily for an adult. In three cases doses of 30 minims three times a day were well borne by children.

4. Large doses rarely cause any gastric disturbance; on the contrary, the appetite is frequently increased, symptoms of dyspepsia disappear, and cod liver oil is more easily assimilated. The cough, expectoration and night sweats are diminished, and the physical signs improved.

5. Owing to its disinfectant action in the alimentary canal, the drug probably diminished the risk of tuberculous enteritis by self-infection when patients swallow their sputa, but owing to the increase peristalsis which is created by creosote, it is usually contraindicated in cases where the ulceration is already advanced.

6. The drug does not tend to cause hemoptysis, but rather to prevent its occurrence.

7. Creosote does not irritate the normal mucous membrane of the genito-urinary tract.

8. Owing to its extremely small cost, pure creosote can be given to a much larger number of patients than the carbonates of creosote and guaiacol, which respectively cost four times and twelve times as much as the older drug.

Scheppegrell.

Pathology of Tuberculous Glands of the Neck; Their Early and Complete Removal.

506. LAPLACE, ERNEST. (*Journ. American Med. Ass'n*, June 4, 1898.) The complete removal and dissection of tuberculous glands are advocated so as to remove as completely as possible the foci of the disease. The main contraindication to the operation is the presence of tuberculous disease of the lungs. The prognosis in uncomplicated cases is favorable.

Scheppegrell.

Werlhof's Disease (Purpura Hemorrhagica.)

507. LEWIS, C. H. (*Medical Record*, May 28, 1898.) In the first case reported, there was purpuric spots over the surface of the body and free hemorrhage from the mouth, nose, bowels, bladder and uterus, the amount of blood lost, in spite of treatment, being enormous. The patient died from cardiac failure.

The point of interest in the second case is that the hemorrhage involved the nuclei of the third nerve, in addition to the blood passed from the bowels and the urethra. This case recovered.

In the third case, there was a moderate number of purpuric spots over the body, and the tongue and throat presented small mucous extravasations. The right tonsil was enlarged and had black hemorrhagic spots on the anterior surface, with some surface clots. The patient died from exhaustion.

Scheppepegrell.

Report of a Case of Foreign Body in the Oesophagus; Retropharyngeal Oesophagotomy.

508. McCoy, C. (*Medical Record*, July 16, 1898.) A whistle was removed from the oesophagus by retropharyngeal oesophagotomy, which was followed by a fistulous abscess, which closed, however, in seven days. When a foreign body has been in the oesophagus for over 12 hours, especially if it is known to have had sharp edges, immediate removal through an external incision is demanded. The prolonged and continued use of oesophageal instruments is condemned. Where practical, the wound in the oesophagus should be closed by sutures at the time of the operation.

Scheppepegrell.

A Contribution to the Pathology of Purpura Hemorrhagica.

509. MASON, J. (*Aust. Med. Gazette*, May 20, 1898.) The patient, previously healthy, suddenly began spitting blood. When seen 30 hours after the onset, the right side of his tongue was one large blood-clot, and blood oozed from the whole surface of the soft palate as if from a sponge. There were several submucous patches. The body was covered with petechial spots in such profusion that the normal skin could not be touched between them. The urine had the appearance of blood, and large quantities were evacuated from the bowels.

The patient was not a bleeder and had never been ill before. The only history given was that six hours before the bleeding commenced, the patient had been struck on the thumb by the hoof of a sheep, which carried away about one inch of superficial tissue. No organism could be found in the blood, but it was deficient in coagulability. Calcium chloride was administered with good results. The author believed the disease to have been of microbic origin.

Scheppegrell.

Tuberculosis of the Upper Air-Passages.

510. MAYER, EMIL. (*The Medical News*, May 14, 1898.)

Tuberculosis of the nasal passages is rare; it may be primary or secondary. In pharyngeal tuberculosis secondary to disease of the larynx, the chief symptom is pain extending to the ear. The treatment must be heroic. There is no chance for recovery, and the physician must be sufficiently humane to freely administer one of the more powerful anodynes, irrespective of the fear of the patient becoming addicted to drug habits. Morphine in combination with cocaine is recommended.

In tuberculous laryngitis, the treatment may consist either of local applications of lactic acid, iodoform, etc., or the surgical methods of Krause and Heryng. In the earlier stages of tuberculous disease, the most important therapeutic remedy is a complete change of surroundings, the climate being suited to the physical condition of the patient.

Scheppegrell.

Graves' Disease with Bradycardia.

511. PASTEUR. (*British Med. Journal*, May 7, 1898.)

A woman suffering from Graves' disease presented marked atrophy of the thyroid gland with certain symptoms suggesting myxoedema. There was marked proptosis, slowness of speech and sensitiveness to cold; the hands were tremulous and the skin moist; the pulse-rate had fallen to between 40 to 50 per minute. Thyroid extract had aggravated the symptoms.

Scheppegrell.

A Fatal Case of Thyroidectomy.

512. PAUL, F. T. (*Med. and Surg. Reporter*, March 3, 1898.) Two cases of thyroidectomy, the first proving fatal, are reported. Marked symptoms of thyroidism de-

veloped in both cases. The symptoms of thyroidism after operation for goitre are due to excess of handling the gland, thus increasing the amount of secretion which is taken up by the lymphatics. To avoid this danger, ligation of the isthmus early in the operation should be done.

Scheppegrell.

Some Clinical Facts.

513. RIPAULT. (*Annales des Maladies de l'Oreille du Lar, du Nez et du Phar.*, No. 5, May, 1898.) The author puts on record a number of interesting observations which he made last year in his clinic:

First, spontaneous expulsion of a big foreign body from the maxillary sinus. A silver nail which was used to close an opening of the maxillary sinus after operation, got lost in the sinus, and was removed three weeks later by syringing the sinus.

Second, Lupus papillomatosus of both nasal fossae.

Third, Rhinolith which was removed from the nose of a child of five years. The rhinolith in its centre did not contain any foreign body.

Fourth, a case of voluminous tumor of the soft palate.

Fifth, hereditary specific laryngitis in a young man of twenty-seven, treated with gradual dilatation of the larynx.

Sixth, a case of gumma of the tongue.

Seventh, remarkably quick development of a polypus of Shrapnell's membrane. The polypus developed in one month to the size of the canal.

Eighth, big polypus of the left nasal fossa with cerebral symptoms. The polypus was removed through the nasopharynx with the finger, and was 12 cm. long and weight 30 grammes.

Ninth, spontaneous hematoma of the uvula.

Tenth, a case of recurrent tubercular ulcers of the nasopharynx and pharynx rapidly cured with carbolic acid in glycerine.

Eleventh, a case of paralysis of the soft palate from pulling a tooth, chloride of ethyl (freezing) being used as the anesthetic.

Twelfth, a case of voluminous papilloma of the right anterior facial pillar.

Thirteenth, grave accident after the use of cocaine. A

ten per cent. solution being used in a patient of 60. Patient was sick for three days but recovered. *Holinger.*

Two Cases of Half-Pennies Impacted in the Oesophagus for Five and Six Months Respectively, Revealed by X Rays and Removed.

514. ROBSON, A. W. M. (*Lancet*, July 16, 1898.) In both cases, by means of Roentgen photographs, the coin was found impacted in the oesophagus at a point opposite the pericardium. Both were removed by the Smith coin catcher. *Loeb.*

Observations Upon the Specific Treatment of Tuberculosis.

515. ROOT, P. S. (*Journ. American Med. Ass'n*, June 25, 1898.) The report of three cases apparently benefitted by oxytuberculin. *Scheppegrell.*

Diagnosis and Treatment of Spasmodic Stricture of the Oesophagus.

516. RUSSEL, J. C. (*British Med. Journ.*, June 4, 1898.)

Cases of spasmodic stricture of the oesophagus are rare. Persistent vomiting, unless due to disease of the stomach, and the behavior of food given through a tube, are of valuable assistance. The failure to detect a stricture on the passage of a bougie is not proof of its absence in spasmodic cases, nor is the persistence of the symptoms after the largest bougie has been passed. Treatment consists of gradual dilatation of the stricture by an expanding dilator to a calibre approaching the normal.

[Spasmodic stricture of the oesophagus occurs most frequently in neurotic patients, and constitutional treatment is usually the most successful. The danger of passing the bougie in this as in other cases should not be overlooked. This subject was thoroughly discussed at the meeting of the American Laryngological Ass'n, Washington, D. C., May, 1897, and many important points brought out. *Scheppegrell.*]

Infiltration Anesthesia.

517. SCHLEICH, CARL. (*Medical News*, June 4, 1898.) The following contraindications of the infiltration method are stated:

- 1, Whenever the limits of disease are not reasonably definable.
2. In diffuse cellulitis requiring free incisions.

3. The malignant new growths on account of the danger of forcing the *materies morbida* into the lymph channels. The same danger is to be apprehended in conditions of diffuse tuberculosis.

4. Special attitudes long to be maintained during operation.

The use of cocain is recommended as a rule, and general anesthesia as an exception.

Scheppegrell.

The Ancient and Modern Instruments Used in Diagnosis and Treatment of Diseases of the Oesophagus and Stomach.

518. SPIVAK, T. D. (*Jour. American Med. Ass'n*, June 11, 1898.) An historical study of the subject of the title.

Scheppegrell.

A Case of Multiple Fibro-Adenoma of the Thyroid with Marked Calcareous Deposit.

519. SOMMER, H. O. (*Medical Times*, July, 1898.) An interesting report of the autopsy, which showed calcareous deposits, not only in the thyroid tumor, but also in the heart, the auriculo-ventricular septum as well as the valves being almost completely calcified.

Scheppegrell.

Modern Methods in the Treatment of Tuberculosis.

620. WAUGH, W. F. (*Jour. Amer. Med. Ass'n*, July 23, 1898.) A general review of the methods of treating tuberculosis, including serum therapy.

Scheppegrell.

Climatology in the Treatment of Pulmonary Tuberculosis.

521. WAUGH, W. F. (*Jour. of American Med. Ass'n*, June 18, 1898.) In general that climate is best for the consumptives that permits him to spend the greatest proportion of his time in the open air, and which affords the largest number of hours of sunshine.

Climate alone will not kill the tubercle bacillus, and the importance of this method of treatment has been vastly overestimated with disastrous results, because it has led patients to rely upon climate exclusively, neglecting more important conditions such as personal hygiene, rest during fever, avoidance of fatigue, digestion, local treatment of tuberculous lesions, and specific treatment which has now reached a development too important to be ignored. With these matters properly attended to, a consumptive will have a better opportunity for recovery in Chicago than in any

other climate on the face of the earth . where all other treatment is neglected. *Scheppegrell.*

The Operative Treatment of Goitre.

522. WORMSER. (*British Med. Journal*, May 7, 1898.) Thyroidectomy is indicated in cases of (1) malignant tumors of the thyroid gland; (2) acute and chronic strumitis; (3) parenchymatous goitre, diffuse hypertrophy of gland; (4) polycystic goitre; (5) goitre with disseminated foci. It is contraindicated in cases in which no normal thyroid tissue is left.

Strumectomy may be practiced in cases of (1) unilobular cystic goitre; (2) isolated nodules enclosed in normal tissue, if same can be removed rapidly and without much bleeding; (3) large morbid deposits existing in immovable goitres. *Scheppegrell.*

Exophthalmic Goitre in Children.

523. X. (*Pediatrics*, Vol. 4, No. 12.) Exophthalmic goitre in children is rare. The development of the disease when present proceeds more rapidly, the tachycardia is much less marked, the subjective sensation of palpitation is less conspicuous, the thyroid affections is constantly present, while the exophthalmic signs are confined to a relatively small proportion of cases. If all patients with chorea were carefully examined, more cases of exophthalmic goitre would be found than is commonly supposed.

Scheppegrell.

NOTES AND ANNOUNCEMENTS.

Drs. Gelosio Chincini and Gaetano Geronzi have been appointed privat-docents of oto-rhino-laryngologie at Rome.

The Archives Internationales de Laryngologie, etc., hitherto edited by Dr. Helme will be continued by Dr. Saint-Hilaire, of Paris.

At the University of Lyons, Dr. Lannois has been empowered to deliver a course on otology, rhinology, and laryngology. Bordeaux and Paris have already official courses on these three specialties.

The Second Spanish Congress of Oto-rhino-laryngologie will meet at Barcelona in September, 1898. The following programme is proposed:

1. What is there to be expected from electro-therapy in labyrinthine affections?
2. Surgical treatment of the cerebral complications of otic origin.
3. Diagnosis and treatment of incipient laryngeal cancer.
4. Results of surgical treatment in laryngeal tuberculosis.
5. Is there a diathetic pharyngitis?
6. Treatment of frontal sinusitis.

The XIII International Medical Congress will meet at Paris on Thursday, August 2, 1900, with Professor Lannelongue as president. It will last one week. There will be a separate section on otology, rhinology, and laryngology. This will, following the precedent of other congresses, be subdivided into two sections; one devoted to otology; the other to laryngology and rhinology. Each department will have a committee of organization. The section on otology will have a committee composed of Messrs. Gelle, president; Castex, secretary; Boucheron, Duplay, Ladreit de Lacharrière, Lannois, Loewenberg, Lubet-Barbon, Menicic, Miot, Nemier. The committee of the Rhino-Laryngological section will consist of Messrs. Gouguenheim, president; Lermoyez, secretary; Cartaz, Chatellier, Garel, Luc, Martin, Mourztet, Bourronillow, E. J. Moure, Poyez Ruault.

All communications on scientific subjects should be addressed:

For the Otological Section, M. C. Dr. Castex, 30, avenue de Messire, à Paris.

For the Rhono-Laryngological Section, M. C. Dr. Lermoyez, 20 bis, rue de la Boétie, à Paris.

For information in regard to railroad fares, hotels, etc., address M. C. Dr. Chaufford, secrétaire général du congrès, 21, rue Saint-Guillaume, à Paris. German, English or French may be used at the Congress. French is the only language allowed in the report.

BOOK NOTICE.

Electricity in the Diagnosis and Treatment of Diseases of the Nose, Throat and Ear. With 161 illustrations. By W. Scheppegegrell, A. M., M. D. pp. ix, 403; 1898. New York, G. P. Putnam's Sons; Chicago, A. C. McClurg & Company.

This book is a useful addition to the working library of every practitioner who uses electricity, notwithstanding the fact that much of its matter is something of an old story to the specialist in otolaryngeology. Lest the praise here given appear too moderate, we wish to say that every recent article of value, witness 565 references, relating to the employment of electricity in diseases of the nose, throat and ear, is adequately abstracted, and properly placed in the book. In this regard the author has set a good example. We feel, however, that in his desire to do full justice to everyone, Dr. Scheppegegrell has been, in some instances, over generous. He has erred in permitting the reader, who may be inexpert, to have his choice. A trifle more of criticism would increase the value of the hand book to the man who has yet to get his experience. On the other hand, the careful reader will be able to discover, which is really the best, in a method or a saw, and the directions for the use of the particular instrument or application are almost without exception explicit. In many individual instances the work gives abundant evidence of having been written by a "practical" man, who has learned the value of exactness when dealing with edged tools. The book can be very heartily commended.

ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

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No. 4.

HORNY GROWTHS OF THE EAR AND KELOIDS OF THE LOBULE OF THE EAR.

OSCAR DOWLING, M. D.,

NEW ORLEANS, LA.

SENIOR RESIDENT SURGEON, EYE, EAR, NOSE AND THROAT HOSPITAL,
AND ASSISTANT TO CHAIR EAR, NOSE AND THROAT
N. O. POLYCLINIC.

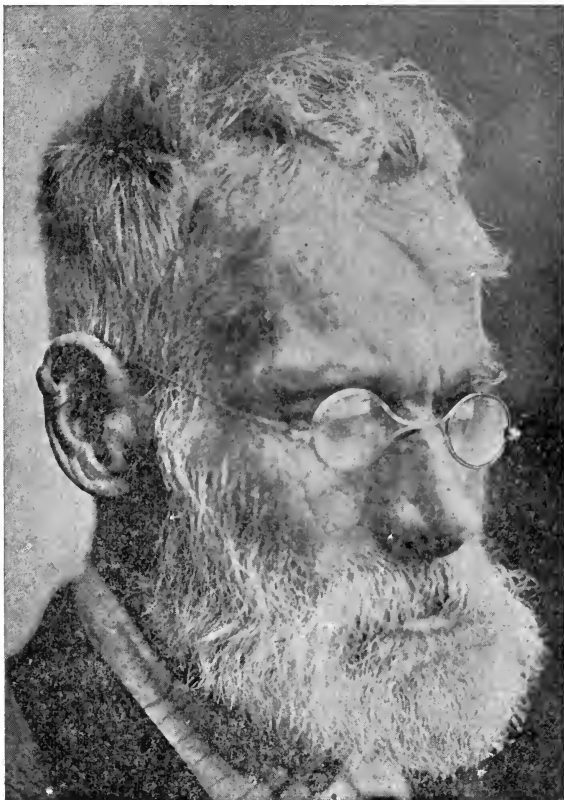
(Services of DR. A. W. DEROLDES.)

ILLUSTRATED.

The cases I report are of interest to the profession. Horny growths, on account of the few cases found in medical literature and keloids on account of the frequency with which they are met by the busy practitioner of the South, are of especial interest on account of the fact that they frequently occur after removal, the recurrent tumors occasionally assuming a malignant type, especially after repeated operations of excision have been instituted. In the preparation of this paper, I have searched dilligently the literature at my command and drawn largely on the articles coming under my observation.

OBSERVATION No. 1. April 17, 1897, J. S., white, male, aged 73, native of Germany, cabinet maker, ten years a resident of this city, presented himself at the Eye, Ear,

Nose and Throat Hospital with a growth on his right ear which he desired treated. He was of a superstitious disposition and objected to the use of a cutting instrument. A little persuasion induced the old gentleman to reconsider, so the day for operation was appointed. Patient was semi-intelligent but claimed he had never been sick.



Horny Growth, Right Auricle, W. M., Age 73.

General health was good, no family history of any deformity or abnormal growth. First noticed growth about two years ago which has increased gradually. Could recall no injury but thought, at first, it was what he termed "a courage bump." Has never suffered any inconvenience from the growth but desired its removal for its cosmetic effect. It was located as shown in the accompanying

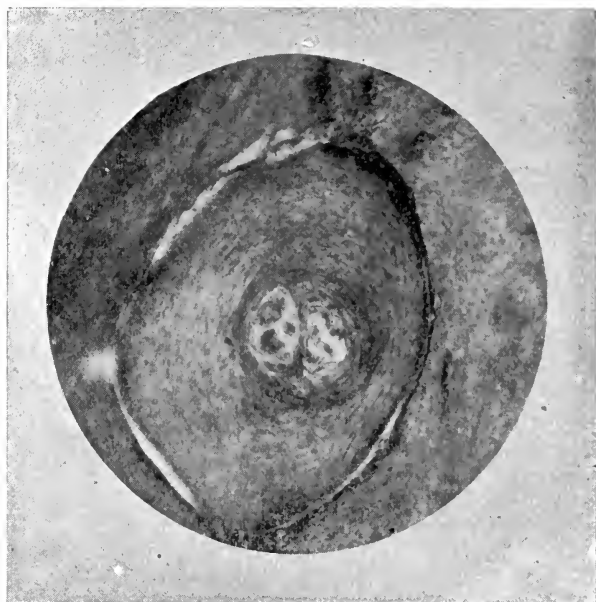
photograph, on the superior half of the antihelix of the right auricle and was $2\frac{7}{8}$ centimeters in length, extending upward and backward to the edge of the helix, $2\frac{1}{2}$ centimetres in circumference at the base and $1\frac{1}{2}$ centimetres at the apex. The vertical diameter at the base was one centimetre and the horizontal diameter was $\frac{5}{8}$ of a centimeter. You will observe from the illustration that the horn curved slightly above the



Section Horny Growth. Low Power ($\frac{2}{3}$) Showing
General View of Structure.

ear. The weight of the growth, after removal, was eight decigrammes. Base of implantation was not inflamed, neither was there any pain on manipulation. The base presented a somewhat of a flattened appearance and the contour was similar to that of a horn of a Jersey bull. Through the courtesy of Prof deRoaldes, and, at that time his chief of clinic and assistant Dr. C. J. Landfried, I removed this growth, in the presence of the Polyclinic

class on the 20th day of April, 1897, by an elliptical incision deep into the tissue after which the edges were as nearly approximated as possible with two sutures over which was placed an ordinary antiseptic dressing and held in place by collodion cantharides. Parts healed nicely and patient was discharged after the fourteenth day, having only a slight cicatrix to mark the place of this unsightly growth. Twelve months after operation there was no sign of return of the growth. Throughout its entire



Section Horny Growth. High Power ($\frac{1}{5}$) Showing Detailed Structure of Columns of Cells.

course this tumor presented a moderately smooth surface, with three slightly elevated ridges and well marked furrows on anterior quadrants while the posterior quadrants exhibited a striated surface. The striæ were perfectly straight while the ridges and furrows were distinctly wedge shaped. The horn was of mahogany color with a uniform hardness, though slightly compressible, from base to apex.

Microscopical examination showed it to be composed of flat epithelium resembling large epithelial scales usually

found in the epidermis. At periphery cells were horny and did not take stain well. Whole specimen was made up of columns of cells forming rings on transverse section and separated from each other by fibrous tissue. In some parts of specimen these columns had become horny and did not take stain well, appearing in field as large areas having a yellowish color. Under high power these columns resemble the cell-nest of epithelioma, as the section was transverse to the horn. No blood vessels or nerves were observed.

OBSERVATION No. 2. While engaged in general practice at Columbia, Ala., W. H., white, male, aged 38, large, strong farmer, consulted me during 1893 for a growth on his left ear. This growth was about half the size of the foregoing one, located on the antihelix, posterior fossa. It was of traumatic origin and while comparatively hard, could be easily compressed, was of a dark-brown appearance and caused a great deal of inconvenience as patient was continually picking at it. I prescribed a simple sulphur ointment for local application, with a view of relieving the irritation and requested him to see me again in three weeks. Shortly after this, while returning from his work one evening, he was struck on this growth by the rebounding of a small branch of a tree, from which he suffered the most excruciating pain for several hours. The ear was very much swollen and five days later he awoke one morning and found tumor detached, save a few fragments which were promptly severed with a razor. This was the statement made by patient for when I saw him six months later there was not the slightest sign of the growth and there had been no return three years subsequent.

OBSERVATION No. 3. I am informed by Dr. deRoaldes that, while House Surgeon Charity Hospital he had occasion to see in the colored outdoor consultation a light mulatto over fifty years of age who presented a horny growth of somewhat similar appearance to the case reported by Cooseman. The patient disappeared from observation, never reporting after first examination.

OBSERVATION No 4. (By Cooseman.) I take special pride in reproducing the article by Dr. M. E. Cooseman, taken from the Transactions of the International Congress

of Otology, at Florence, 1895. I am indebted to Dr. Homer J. Dupuy for the translation and to Dr deRoaldes for the use of the photograph and the plaster paris model, illustrating this observation, presented him by his friend, Dr. Cooseman, while attending the Congress.

The 18 of February, 1895, a farmer, aged 71, consulted me, requesting me to remove "a button" which he carried on his right ear.



Horny Growth, Auricle, Cooseman.

HISTORY. General health good, no family history of a similar growth. Patient was never sick. This affection began about one year ago, by a slight induration which the patient scratched off with his finger nails seven differ-

ent times. A slight hemorrhage resulted from each procedure. One month after removal of the induration by this manipulation the growth recurred.

DESCRIPTION OF TUMOR. It is located on the superior half of the antihelix of the right auricle. Total vertical diameter 15 mm., circumference 45 mm., diameter of about 15 mm. Base is slightly wider than apex. Apex somewhat sharper and curved beneath the helix. It has a woody consistence. The surface of the tumor is striated in its vertical diameter. These striæ run up to the apex producing on its free surface slight inequalities. Color, dirty brown, darker toward the base. Line of demarcation is well marked between healthy surrounding skin and excrescence. Base of implantation on the skin is neither inflamed nor indurated. There is no spontaneous pain. Pressure by the finger, or inclination of patient's head toward right side, renders tumor more or less sensitive.

TREATMENT. Tumor was removed on August 7, 1895. I extracted it from the base, which I scraped energetically with a sharp curette, then cauterized with the thermocautery. Cure was complete on August 30, 1895. On the site of former tumor nothing but a smooth, elastic, superficial cicatrix remained.

MICROSCOPICAL EXAMINATION. You will first remark that base of tumor is uneven—mammellated—presenting ridges and furrows. There are corresponding inequalities on the cutaneous surface. In inferior part cells of the Malpighian bodies are intact and circular and have a nucleus in the centre. In ascending toward the apex cells become more and more flattened, the nucleus increases in length until at the summit of the tumor it forms a mere line. Lamellated structure is also to be seen; the lamelle are directed toward the principal axis of tumor and are in juxtaposition the one to the other, without any connective tissue substance intervening. Some of the lamelle are perfectly straight, others curved and wedged the one in the other. In the centre of the tumor the cells have disappeared, the nuclei only remaining, at the apex even the nuclei have disappeared. No blood vessels or nerves are to be seen.

CONCLUSION. We are dealing here with a horny growth made up of epidermal cells agglomerated together which

have taken a perpendicular instead of a horizontal course.

REMARKS—Horny growths, while observed at all times, are nevertheless of rare occurrence. They excited the wonder of the ancients to such a degree that they attributed to individuals afflicted with such growths special power of a supernatural and even a divine order. The statutes of Jupiter Ammon and the Satyres prove the truth of this assertion. Horace has even written a satire on this subject insinuating that the disease should be called the disease of Campania, as it was pretty common in this region. The first serious observation of a case was made by Lamfranc, he says in substance: "A man consulted me who presented in several places on his head seven excrescences, some longer than others, as large and as pointed as the horns of a deer (stag). There were no ulcerations of the skin. I considered a cure impossible." Among later authors two opinions prevailed as to the origin and nature of such growths. Malphigi and Morgagni from a study of the anatomical character of the growth hold that these horny growths are prolongations of the dermal papillæ. These dermal papillæ are surrounded by epidermal tissue which masses up like a wall and completely encircles the former structure. During the period of growth of the individual these dermal papillæ and epidermal tissue wedge into each other, intermingling thoroughly, finally taking the form of a hard body. Cruveilhier also inclined to this opinion. On the other side, John Hunter and Horne were the first to recognize that these growths can follow encysted tumors of the skin, and Meckel says that they originate in this manner, even when they have been preceded by a wound of the skin. Virchow ended the discussion and settled the question by stating that if, even from the observations made by Bartholin to those of Wilson and Burns we must admit the possibility of horny growths originating from encysted tumors, it is nevertheless certain that in the majority of cases these growths are simply cutaneous productions. Krause was the first to examine the histological structure of these horny growths and regarded them as epidermal productions in which the horny layers assume a perpendicular direction and in this manner give origin to tumor formations. Rokitsansky and Vogel held

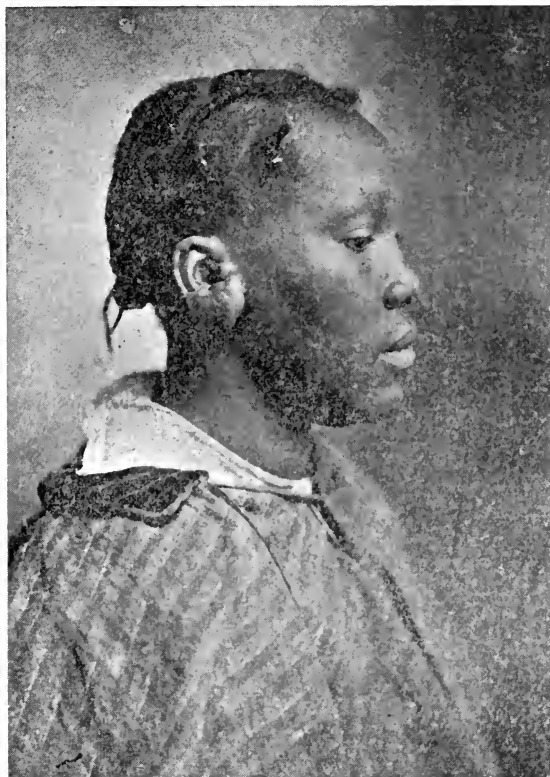
the same opinion. The latter macerated these growths in a solution of caustic potash and he thus ascertained that they were broken up and separated into small scales. Wilson compared the horny growth to the finger nails. Simon thought he found canaliculi; filled with marrow. But Virchow demonstrated that this so-called marrow was nothing else but horny structure compressed together. Virchow also showed that the body of the cutaneous horn contained neither nerves nor blood vessels. If these structures are found in those sections cut from the base of the tumor this is due entirely to the penetration of the dermal papillæ into a higher portion of the tumor. This is just what occurs in the derma. Lebert, Dühring, Kaposi, Brocq, etc, considers horny growths to be a vertical hyperplasia of the horny layers of the epidermis. These growths can originate from any surface of the skin but show a predilection for the cutaneous region of the head. This tumor is generally simple, but several may be observed on the same individual at the same time. Botge reports two cases, one a man of 60 with horny growths; four on the nose, two on the left cheek. The other case of a girl 17, who at the age of 2, had a very extensive eruption followed by the appearance of multiple productions resembling warts. The lower portion of the body, from the iliac crest, was studded here and there, with such growths. Along a line corresponding to Poupert's ligament these growths were especially numerous, the whole surface being completely studded by them—and they moreover had a symmetrical distribution. A growth measuring 15 centimetres was located near the umbilicus, and there was also another growth of similar dimensions near the right labia majora. Pick publishes a case 22 years of age with a horny growth on the penis which covered the whole circumference of the junction of the prepuce and glands penis.

[I saw a similar case, 1890, in a young man 20 years of age. The glans penis was amputated in order to get rid of the growth, and when the patient was last seen, five years later, the stump was perfectly healthy and showed no sign of recurrence.]

Horny growths of the auricle. This growth is seldom to be found on the auricle. Politzer does not record a

case in his practice, in fact he never saw a case. Buck, Burnett, McBride and Pomeroy each report cases.

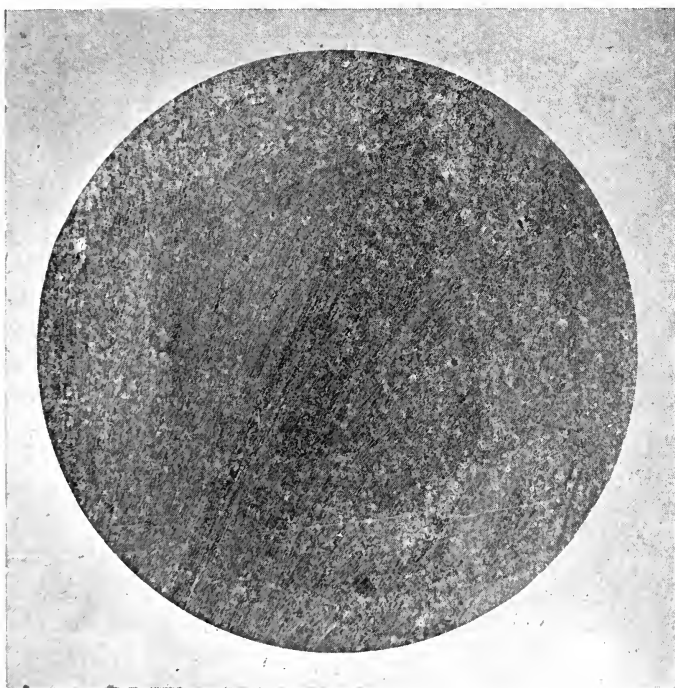
OBSERVATION No. 5. Julia W., full colored female, aged 23, native of Louisiana, servant, was admitted to the clinic February 14, 1897, with a keloid of the right lobule. Family history was good and she presented the appearance of an exceptionally healthy woman. She is the



Keloid Lobule, Right Ear, C. E., Age 23.

mother of one child four years old. No history of keloid among five sisters and four brothers, but her mother had small keloids on both lobules, which never grew larger than a cherry, disappearing about the climacteric period. First noticed the growths seven years ago, shortly after piercing the lobules and wearing ear rings. They grew slowly until they were the size of a bird's egg. One year ago

she was operated upon by Dr. Carter of Nacchitochs Parish. There was not the slightest sign of recurrence on the left ear while it reappeared before the right ear had completely united and continued to grow until it was as large as a hen's egg. It was large, spheroidal, occupying the entire position of the lobule, looking like a large overgrown lobule. It presented a hard surface, smooth, nodulated and as deeply pigmented as the surrounding



Section of Keloid. Lower Power ($\frac{2}{3}$) Showing General View of Tissue.

healthy skin. By order of Dr. deRoaldes she was hospitalized, preparatory to being operated upon. She objected to being operated upon with cocain anæsthesia, having already been operated upon for removal of keloids under chloroform and was afraid to have any cutting done "unless she was asleep." Anaesthetic was administered, the following day, without any unpleasant developments. The operator, Dr. Augustus McShane, first assistant surgeon, marked a

line of incision on her black skin with a scalpel, about $\frac{1}{8}$ of an inch from the edge of the keloid, and even a little further where the growth seemed to be sending slender processes of new tissue as an invading vanguard. On account of the size of the mass and the loss of healthy tissue from the previous operation, it was necessary to sacrifice as little of the latter as possible. At best it was evident that even the most conservative operation would



Section of Keloid. High Power ($\frac{1}{5}$) Showing Fibrous Tissues.

inevitably leave a considerable surface uncovered by epidermis when the edges of the wound would be brought together after the removal of the growth. The operation, though a simple one, was somewhat prolonged on account of the desire to save as much healthy tissue as possible, and also on account of the remarkable hemorrhage from the numerous hypertrophied vessels supplying the growth. The lobule had been completely excised at the previous operation. The tumor was removed entirely, leaving at first a very large surface for healing by granulation; but

when the edges were brought together, slight force being used, the exposed surface was reduced to a minimum, leaving a "strip-like" raw surface not more than $\frac{1}{4}$ inch in length and half that width. The cartilage of the ear was cut through and exposed, but was covered when the wound was sutured. Before closing the wound, all bleeding points were cauterized with the theremo-cautery. The approximated edges healed by first intention and the granulating surface within three weeks. Patient was seen a few days ago. the ear, save the loss of the tissue, presented a perfectly healthy appearance; nothing but a smooth, elastic cicatrix marking the place of the former keloid. The growth removed weighed 18 grammes.

Microscopically, a section of the keloid presented a horny layer of epidermis, resting upon the cutis vera. In the neoplasm proper, a large quantity of roundish and spindle shaped and stellate cells were found, which anastomosed with one another and were separated by an abundant homogeneous or finally striated intercellular substance. Nuclear elements were scattered through the fibrous tissue, which were apparently inflammatory for they did not alter the tissue in any way, merely lying in the spaces. The hyaline bands of fibrous tissue took the stain well, but had no definite structure.

OBSERVATION No. 6. L. H., colored female, servant, age 21. Keloid appeared on left ear at fifteen years of age, about ten months after piercing lobules for ear rings. Tumors grew rapidly to the size of a guinea egg; was operated upon five years ago at Charity Hospital by Dr. Cochram. Growth reappeared three years later and is now about the size of the original keloid. Has previously worn brass ear rings. No history of keloids among other members of family. Patient complains of occasional slight pain in region of tumor.*

OBSERVATION No. 7. L. C., colored female, servant, age 20, has keloid of both lobules about the size of an English walnut, on right ear, and half that size on left ear. Lobules pierced at nine years of age and brass ear rings worn.*

Tumor first observed on right ear, about five years ago, and the left ear several months later. Two years ago applied a horse hair constrictor which resulted in no good

but acted as an irritant and brought about a renewed growth of the tumors. No history of keloids among other members of the family—mother, two brothers and three sisters living and enjoying perfect health.

OBSERVATION No. 8. W. W., colored male, laborer, age 14, healthy, weight 105 pounds. Has large pendulous keloid on right lobule, resembling a tomato with a nodulated surface. Ear was pierced at six years of age on advice of some superstitious friend to cure sore eyes. Growth appeared two years ago and has been growing quite rapidly of late. Both parents, two brothers and three sisters living. No history of keloids for three generations. We find a slight trace of Indian blood in this patient and he is the only exception to the full blooded negroes I have seen among the colored race. He is fully $\frac{7}{8}$ colored.*

I have made a careful research of the records of the hospital and find among the first 43,000 patients visiting the clinic 29,524 white and 13,476 colored. Of these 21,637 males and 21,363 females; 7925 were under 10 years of age and 35,075 over 15. Among these we find 35 keloids, 3 of whom are white and 32 colored. Two of the whites are males, one under 10 and the other between 10 and 20. The only female, white, was 17. Six of the colored were males, one between 10 and 20, four between 21 and 30 and one more than 40 years of age. Of the 26 colored females, three are under 10, twelve between 11 and 20, eight from 21 to 30, three from 41 to 50 years of age. From this you can judge the relative frequency of keloids among the white and colored races. A few of these were mulattoes, but a large majority were full black. All these coming under my observation gave the history of the "usual ear ring," and I feel safe in saying without fear of successful contradiction, that, with four exceptions, including the two white males and two of the colored males, and these may have been from some irritation though no history of piercing, ear ring or injury, the traumatism existed in the 35 cases. Admitting the four cases to be spontaneous, we have a relative ratio of less than 9 per cent. springing spontaneously against 91 per cent. from traumatism.

*Observations 6, 7 and 8 were made after the meeting of the Louisiana State Medical Association. They were patients at the Eye, Ear, Nose and Throat Hospital during June and July and I should have stated that they were enjoying perfect health. I operated each of them with the usual V shaped incision, removing a portion of the cartilage. All made satisfactory recoveries and as yet no sign of return of the growths. (Aug. 1, 1898.)

In a communication read before the International Congress of Otology, at Florence, 1895, Dr. deRoaldes said: "Most observers who, like Turnbull, Tiffany, Gregory, Knapp, Briggs, Yandall and many others have mentioned the frequency of keloids in the negro race—have also reported so many recurrences after extirpation, that most surgeons refrain from removing keloids, more especially at the age of physical development and growth. There is a connection to be established between the post-operative reproduction of these tumors in the negro and those so familiar, viz.: naso-pharyngeal polypi. I have operated again and again on keloids with the knife, followed by the use of the thermo-cautery, the latter having sometimes a modifying influence of some sort over the growth. Within the last few years I can but praise the use of electrolysis as an adjunct in the bloody extirpation of keloids.

My hospital records show three cases of keloid not originating from traumatism or piercing of the ears. Are these spontaneous tumors or must we suspect traumatic irritation so slight as to pass unnoticed?"

Knapp relates several cases originating in places in which the ears were pierced and says that "tumors are so seldom met with after the ears have been pierced, that some authors, for instance, Lawrence Turnbull, are not inclined to take them as a consequence of the injury alone, but let a peculiar condition of the system, especially scrofulous or galvanic action of the alloyed metals of the ear ring, play a part in their production."

Bullard, Burnett, Dench, Field, Hovell, McBride, Pomeroy, St. John Roosa, Sutton, Taylor and others relate cases among the colored race and without a single exception attribute the cause to piercing and wearing ear rings, at the same time claiming that they are frequently met with among the colored races and seldom among the Caucasians.

Agnew, Barr, Gruber, Pritchard, Shields, Wilde and others report keloids and while accepting the traumatic theory make no distinction between the relative frequency among the different colors. Trumbull and Bliss in foot note of Annual of Universal Science, Sajous, 1896, says, "Tumors of the lobe are as infrequent in the negro as in the white race, but frequently in the mixed races, especially the mulatto."

Some author states that fibroma of the lobule occurs more frequently in colored than white and think the reason of it is that the poor negresses have to use ear rings of commoner and heavier material than their more fortunate rivals.

Dr. Senn, of Chicago, in his excellent work on "Pathology and Surgical Treatment of Tumors, page 382, says:

"Keloid resemble clinically some of the granulomata, and under the microscope it is a compromise between a fibroma and a sarcoma. Its frequent occurrence in tubercular scars resulting from small punctured wounds has led the writer to suspect that it might represent a particular form of tubercular inflammation. We are, however, not in a position to prove its tubercular origin, and nature, and its clinical behavior would certainly tend to negative the idea that it is a form of sarcoma. For the present we must include it among the fibromata, although strongly inclined to believe that before long it will have to be classified with the infective swellings. The colored race is particularly predisposed to keloid. The sting of an insect, the prick of a needle, or a small abrasion frequently acts as the exciting cause. Keloid sometimes affects different parts of the body at the same time, but always develops in a scar, which may be so small as to elude detection. The tumor slowly increases in size up to a certain point, and after having remained stationary for from 10 to 20 years they slowly disappear—one of the strongest proofs that it is not a true tumor. The keloid tissue is characterized by its great vascularity as compared with other fibromatous tumors and by the existence of numerous connective tissue space lined with endothelial cells. The inflammatory parts of a keloid is shown by the numerous leucocytes in the vascular spaces. From the structure of a keloid it would be reasonable to assume that occasionally it is transformed into a sarcoma. The benign clinical aspect of a keloid render it easy to distinguish between it and a malignant tumor of the scar-tissue."

All authors agree that unless thoroughly removed the tumor is sure to return. If the growth is in the lobule a V shaped incision may be made with a sharp scalpel and the wounds closed with sutures. It frequently becomes necessary to take a portion of the cartilage in order to completely remove the keloid. Newton in N. Y. Weekly Journal, March 20, 1897, folio 380, reports two cases of keloid successfully treated with thiosinamin. This remedy, though new, judging from what he says, is worthy of favorable consideration.

To Dr. O. L. Pothier I am under obligations for the microscopical examinations and the photo-micrographs illustrating this paper.

I am grateful to Dr. deRoaldes for the use of transactions and reprints and a list of authors on these subjects, to Dr. C. J. Lanfried for access to his file of Medical Journals, also to Dr. McShane for the use of a book and valuable suggestions.

OTITIC CEREBELLAR ABSCESS.

DR. PAUL KOCH.

(Continued from Aug. No., 1898.)

Translated and abridged by Drs. H. A. Alderton and J. Ketterle,
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If, after or following general brain symptoms, only severe optic neuritis and early and deep coma are characteristic of meningitis serosa as opposed to cerebral abscess, nevertheless the diseases become more widely separated by the focal symptoms. It is true that mild rigidity (which in meningitis serosa exceptionally reaches to severe rigidity), mostly in association with opisthotonus, pupillary difference and strabismus are characteristic of both diseases; disturbance in walking, which is such an important symptom in cerebellar abscess, is much more pronounced than in meningitis serosa. The patients, in half of the cases, walk unsteadily, show tendency to fall to one side or the other, or forward or backward, and at times cannot stand or sit without support. On the other hand, meningitis serosa is characterized more frequently by severe disturbances in sight, which, as we have mentioned, is not the case in cerebellar abscess. Out of 22 cases, 5 had amaurosis and severe amblyopia, mostly due to continued pressure on the optic nerves, although this was sometimes only a temporary condition.

We look upon the following as symptoms peculiar to meningitis serosa, even though they are not of frequent occurrence, namely, deafness, loss of taste and smell. With meningitis there are often bilateral pareses and paralyses, which rarely occur as pure cerebellar symptoms. Both arms may be involved, both legs, both abducens and both facial nerves, involving all from the very beginning, or gradually one after another. It is true that at times these disturbances may be unilateral, in which case a crossed paralysis will point toward a meningitis, and against an

abscess. Motor-speech disturbances considerably preponderate in meningitis, but this disturbance is similar to that described in connection with cerebellar abscess. It is possible that this symptom, when present in abscess, is due to accompanying meningitis, even where abscess symptoms predominate. Mild degrees of hydrocephalus internus may have been overlooked or neglected in autopsy records. Disturbances in swallowing, seldom observed, belong to symptoms of meningitis. An important and characteristic symptom, it seems to me, are the attacks of convulsions or cramps that are observed in one-third of the cases of meningitis serosa. These are either general or partial convulsions, or tetanic with opisthotonus and trismus, while some patients lose consciousness. We have seen such convulsions, etc., often with cerebellar abscess, but all those cases, with accurately made post-mortems, show more or less severe hydrocephalus internus.

There are, therefore, some not unimportant differences between the symptoms of these two diseases, which in many cases will carry us to a correct diagnosis. The main difference, however, is in the course and termination. The abscess, once it has entered the terminal stage, usually steadily progresses toward the end, while meningitis serosa takes a variable up and down course, at times better, at times worse; the first lasts one to three weeks, the latter may last weeks, months or years. The patient with meningitis serosa suddenly becomes ill with severe brain symptoms of various kinds, yet after a few days or hours these symptoms disappear, leaving behind this or that symptom. After a time there appears a second attack, which is not necessarily similar to the first. Thus it goes on and on. The single symptoms vary as often as the different attacks. Meningitis is accessible by energetic therapeutic measures. By means of depletion of all kinds, by inunctions and by lumbar puncture we can sometimes modify or even cure the trouble. The lumbar puncture of Quinke is a valuable method to inform us if there is an excess of arachnoidal fluid, its quantity and properties.

It is usually possible for us to say with certainty: "This ear patient has a meningitis serosa." However, this does

not help us much. Against six cases of meningitis serosa ex otitide, there are at least six cases of meningitis serosa with cerebellar abscess, in which the symptoms of abscess were overwhelmed by the symptoms of meningitis. And as not less than 20 cerebellar abscesses were accompanied by some degree of meningitis, it shows that meningitis serosa more often develops a cerebellar abscess than from an otitis media. We can only say, therefore, in single cases: "This case of otitis media has symptoms of a meningitis serosa, probably there, also, exists a cerebellar abscess."

Tubercular meningitis, in its early stages when consciousness is clear or almost so, may cause us great diagnostic difficulties. The general brain symptoms are the same as those of abscess; namely, convulsions, rigidity of neck and difference of pupils, and it has been shown that some optic neuritis may be present at the end of the first week or earlier, while the characteristic choroid tubercles are often absent. The diagnosis become certain only in the second week when the following symptoms appear, namely: somnolence becomes deeper and deeper and goes into sopor, there appear irregular pareses, spasms and contractions, and the pulse becomes very frequent. The diagnostic difficulties in children are not to be overcome. Tuberculous meningitis is comparatively frequent in the first ten years of life, tubercular caries of middle ear and its surroundings leads generally not to abscess, but to tuberculous meningitis, and we can state that one-half of all the cases of cerebellar abscess before the tenth year, are accompanied by meningitis serosa, whose symptoms in general are not to be differentiated from the tuberculous with certainty. Thus it is that in such children only two cases have been trephined and no opening of an abscess accomplished. If we read the histories of our 11 cases we see that the prodromal symptoms, which are typical of meningitis tuberculosa in children, have been observed in a single case, in all other cases the disease appeared suddenly and without prodromes. Temperature was that of fever only in two cases; in all other cases it was normal or subnormal, even in observation lasting several weeks. Finally several children were almost or entirely conscious unto death, if we exclude those temporary

periods of unconsciousness during the convulsions. And as death generally appeared toward the beginning of the third week, we must take note of the value of the foregoing remark. On the other hand, ptosis and strabismus are frequent and early symptoms of tuberculous meningitis (end of first and beginning of second week) while in cerebellar abscess with and without meningitis serosa, it has seldom been noted. Finally we may find all the symptoms of tuberculous meningitis in cerebellar abscess, especially where accompanied by meningitis serosa. Therefore I think as follows: If a child in the first ten years of life, and following a protracted otitis media acute or chronic otorrhea becomes suddenly ill with earache, headache, vomiting and general convulsions (to which other general brain symptoms may be added) and if the consciousness remains clear during intervals between convulsions, and if temperature is normal or subnormal, such other symptoms as rigidity of neck, pupillary difference, fixation of eyes, disturbance in equilibrium and twitching of muscles, also same-sided pareses will point to cerebellar abscess, while incontinence and some hyperesthesia may also be persistent and will not alter the diagnosis. If we have attempted to cure the indigestion by appropriate treatment, if we have relieved retention by paracentesis, if we have removed polypi and chiselled the mastoid, if all these things have been done and no improvement has taken place in the general brain symptoms, are we justified by the middle of the second week, in puncturing the cerebellum. As choroid tubercule points to tuberculosis, so does pronounced optic neuritis at the end of first week point to cerebellar abscess or meningitis serosa. It must be remembered that in 2 cases out of 11, a careful chiseling would have led us directly into an abscess, though a defect in the posterior wall of the pyramid and through a dural fistula.

We may now give a short consideration to meningeal hyperemia, which produces especially alarming symptoms in children and exceptionally ends in death. We do not know much about this affection. General brain symptoms, convulsions, difference in pupils and strabismus may present themselves in a beginning otitis media acuta in an alarming degree. The presence of a brain abscess

is not probable because we have seen that abscess following otitis has not caused symptoms before end of second week, while paracentesis and antiphlogistic measures generally soon clear up existing conditions. Retention in an acute or chronic otitis media may even produce such symptoms until the cause of retention has been removed. There are individual cases in which there cannot be retention, and yet the general brain symptoms persist for some weeks. These cases can have a great resemblance to our Group II, and if at the same time the papilla on same side is blurred, and if the corresponding pupil is dilated and slow to act, we should think of abscess, and if to this rigidity of neck or paresis of the corresponding facial nerve in its branches appears, or if the abducens is paralyzed, we would think more that it is cerebellar abscess, and we would end by first puncturing the hemispheres of the cerebellar and then of the temporal lobes. These cases are of course rare.

In large children and in adults, we are not so often compelled to make a differential diagnosis, because tuberculous meningitis is here a much rarer affection. The symptoms are not different from those in younger children, but prodromes and convulsions are comparatively more rare. Temperature and pulse may act as they do in abscess, so that finally on a quick progressive unconsciousness and delirium, pronounced neck rigidity and crossed disturbances in mobility and sensibility will aid us in making differentiation. Regarding the differential diagnosis, we next come to ask if it is abscess or meningitis; and if, in ear patients, we should further decide whether the meningitis is serous, purulent or tubercular, we must take into consideration the condition of the other organs. If in other regions we find tuberculosis, the ear trouble is considered tubercular; if other organs are not tubercular, we must then think of a serous or purulent meningitis. This shows us how easy it is to make an occasional diagnostic mistake.

CASE—Man, age 42, well built, laborer, seemingly well up to this time, was seen in Charity Hospital, 27-IX-92, and we suspected a purulent meningitis. Besides pronounced meningitic symptoms, which first appeared suddenly on the evening of 23-IX after he had worked all day, there was his usual right sided otorrhea. Inner

organs were apparently normal, except that in left lower lobe of lung there were some doubtful abnormal sounds. On 4-X (11 days from beginning) he died. Autopsy showed, much to our surprise, a well developed meningitis tuberculosa. Superior lobes of both lungs had cheesy deposits and slaty indurations, while spleen and kidneys showed submiliary tubercles. During life the lung seemed normal and likewise in other organs there was no suspicion of tuberculosis; the meningitic symptoms appeared so suddenly and the course was so severe and so rapid, that none of us ever thought of a tubercular meningitis.

In doubtful cases we can use to advantage the following, namely: lumbar puncture, or a puncture of arachnoidal sac after careful chiseling with the object in view that some result might follow. Doubtless a tubercular caries of middle ear and its surroundings often leads to tubercular meningitis even in grown persons; nevertheless we very seldom have direct evidence that the meningitis originates from a diseased ear, and not from a tubercular process co-existing in some other parts of the body. For this reason, I cite shortly the following case, which I observed in January, 1892, in Chairity Hospital, under jurisdiction of the deceased Geheimrath Fraentzel.

In the winter of 1891-2 a postman, age about 32, had pronounced pulmonary phthisis with a temperature and tuberculous caries of the left ear. By frequent and careful douching of the ear, we were enabled to clear out the thin pus. One evening I found the patient very restless, although perfectly conscious; next day he had severe headaches, progressive dulling of sensorium, and on 3d day we were sure of a meningitis tuberculosa. Autopsy showed a well developed tuberculous caries of middle ear. In the tegmen tympani there was a narrow crevice which was filled with a pale red connective tissue membrane containing tubercular nodules. This tissue reached to the dura, and over it, which was thickened and reddened, seemed to be curled up, and likewise contained tubercular nodules. The inner surface of dura was here swollen and dulled. The lower and the outer surface of left temporal lobe as well as the fissure of Sylvius were filled up with countless submiliary and miliary tubercles, with moderate sero-fibrinous infiltration of the arachnoid. The nodules became less numerous as we went upward or forward or backward or toward median line, and on the right side there were very few nodules.

At times it is a question whether the symptoms before us are due to tumor or abscess, because cerebellar tumors are not so very rare. According to Gowers, the great characteristic sign of brain tumor is the gradual beginning

and the slow progressive course of the same. On the other hand, it is noteworthy how suddenly we have the beginning of the terminal stage of an abscess, the rapid progression of symptoms, and rapid outcome; the former (tumor) requiring months and years, the latter (abscess) only weeks. The otic abscess, with its disturbances, points to one seat or situation, near the diseased ear; tumor, which occasionally accompanies an otitis media, is independent of the ear and can therefore cause local symptoms that would be impossible for an otic abscess. The appearance of abscess symptoms is, as a rule, generally accompanied with distinct disturbances in the course of the causative otitis media, while such an event with a tumor, would simply be coincident. Cerebellar tumors, as a rule, lead to optic neuritis and often of such a severe degree as never occurs with abscess. Thus we can generally reach a differential diagnosis. The tubercle nodules cause more difficulty, especially if the individual is young. Tubercular nodules are classed with the frequent forms of brain tumors; further three-fourths of all tubercular nodules belong to first 20 years of life; one-half to the first ten years of life; the most frequent seat of this tumor is in cerebellum, hemisphere or vermiform; it occurs in children, usually with a bone tuberculosis, especially of the petrous bone, and finally leads not unfrequently to hydrocephalus internus, if situated in the cerebellum. This cheesy deposit represents a chronic growth, which, as a rule, causes a chronic complaint. The disturbances drag over several months with various changes in development of general and local symptoms. But there are cases that remain more or less latent, then suddenly produce symptoms and rapidly lead to death; and this (death) may be due to severe disturbances caused by presence of the tumor, or to a sudden appearance and rapid course of meningitis tuberculosa. In the first 10 years of life, we can clinically distinguish a tubercular nodule from a cerebellar abscess, but hardly can we diagnose a cerebellar abscess from a tubercular nodule; even at the post-mortem it is sometimes difficult to make the differentiation if we are dealing with a softened and purulent nodule. Altogether we can best decide upon cerebellar abscess, if the child has up to this time been healthy and strong; if other signs of tuberculosis are wanting; if parents, brothers and sister are healthy; and if the otorrhea followed scarlet fever or diphtheria, so as not to leave the impression of being tubercular. Occasionally a dural fistula will help us out in diagnosis. In

doubtful cases it is better to operate than to give up. If there are tubercular nodules in the cerebellum, the child is lost; why might we not have luck in emptying out a solitary nodule, as we do in abscess, if we find it?

Other obstacles threaten him who is looking for brain abscess. We have given an example above, where the coincident presence of several widely different affections with an otorrhea lead to a false picture. Oppenheim pointed recently (as did Raymond 15 years ago) to hysterical accompaniments in some cases of otorrhea. The knowledge of the dangers of an otorrhea has spread lately among the laity and the profession. The patients are acquainted with the undesirable brain symptoms, they are afraid, and constantly observe their own condition. Thus I have been treating an old lady for several months, who has circumscribed caries of the hammer, without much irritation; dry ear; she came to me very much disturbed, with earache and local headache, dizziness and nausea, and had vomited several times. Upon percussing the skull I came across a tender spot which became more tender upon each subsequent examination. No other symptoms. Nevertheless she was quite corpulent and full blooded, had some heart trouble and digestion was not quite in order. A careful obesity cure was undertaken, all symptoms disappeared, and she no longer believes that she will die of ear trouble. On the other hand we may seek for the cause of symptoms in every other place, while we may be dealing with cerebellar abscess. I lost a woman with cerebellar abscess who had complained of constant vomiting, obstinate constipation and sleepy unconcerned existence, and after chiseling open, I decided that pregnancy had caused these symptoms; she was married, had children, and positively stated that she was 3 months pregnant. She had had similar trouble in 3d month of last pregnancy. These facts lead us to make an exploration at autopsy and we found no pregnancy.

Finally I must treat of the differential diagnosis between this and temporal abscess. I will give a short resumé: cerebellar abscess is accompanied by disturbance in equilibrium, in gait, in breathing, and in motor speech, with rigidity of neck, trismus, same-sided paresis of facial extremities, also amaurosis without atrophy of the optic nerve, and often, especially in children, convulsions. Temporal abscess has crossed paresis, paralysis, spasms and convulsions, hemi-anesthesia, amnesic and commissural aphasia, hemiopia, same-sided ptosis. With the latter (temporal abscess) all symptoms point to a disturbance or affection of the internal capsule and at the base there may be involved only the centre for the oculo-motorius or rarely in the centre for the abducens; sometimes the in-

fluence of the brain abscess does not reach to this region of the brain, and so the nerve may lead through the abscess to the base of brain uninjured. The first appears with symptoms of localized slight basilar meningitis and we then have to decide if that which we have to deal with, is already purulent meningitis or not; or it appears with symptoms of meningitis serosa ventricularis, and then there is the question, is that which we are dealing with a simple meningitis serosa, or is it also accompanied by cerebellar abscess. Cerebellar abscess in two-thirds of all cases produces very slight and mild local symptoms or none at all, while temporal abscess produces more or less local symptoms of the stated sort. A last and important criterion is the manner in which the bone disease of pyramid spreads. The abscess tends to be situated where the caries has approached the dura; thus in temporal lobe, when caries is at tegmen tympani or tegmen antri, in cerebellum when caries is upon posterior wall of petrous bone. Purulent processes in labyrinth lead, if not to meningitis, to cerebellar abscess and therefore an accurate functional testing is of value, as well as a careful investigation of the horizontal semicircular canal and of the niche of the fenestra ovalis.

Prognosis.

Otic cerebellar abscess, left to itself, leads sooner or later to death. Even in the isolated reported cases of spontaneous cure (Zutphen), the patient would have succumbed to a second abscess, if a fatal hemorrhage had not hastened death.

The prognosis of cerebellar abscess is worse than that of temporal abscess because its diagnosis is more difficult and uncertain. The rapidly following fatal rupture into the lateral ventricle in the latter (temporal abscess) may be compared to the unexpected, quickly appearing and rapidly fatal paralyzing of the respiratory centre in the former.

The prognosis of operation in either variety of abscess is the same of 76 cerebral abscess operated upon according to Körner, 55.3 per cent. recovered; of 19 cerebellar abscesses that were opened, 52.6 per cent recovered. The prognosis for the operation, which was only a few years ago thought unfavorable for cerebellar abscesses, has become more favorable. Out of 9 fatal cases, 2 were not fully operated upon, 2 were due to a complication (hemorrhage and pyemia), 1 due to meningitis that followed the ear trouble. In 4 cases the abscesses were well cleaned out, death followed and autopsy did not reveal any other change in brain. Two of the cases were operated upon

during coma from which they never fully became conscious, the 3d had an acute paralysis of the respiratory centre with a good pulse, but emptying the abscess had no effect toward recovery. Particularly noteworthy is the case of Milligan and Hare. The patient was apparently not very sick and was operated upon, and following the operation he felt well and a speedy recovery was expected. Suddenly the respiration became irregular, the temperature rose rapidly and in 3 hours he died. This was 22 hours after complete emptying out of an uncomplicated abscess.

In one particular, therefore, the prognosis in cerebellar abscess is worse than in temporal abscess, because at any moment there may arise a paralysis of the medulla oblongata. On the other hand it is better, because in cerebellar abscess we never observe the defective emptying of the abscess, or the accompanying progressive encephalitis and encephalo-meningitis, which so often proves fatal after operations on the temporal region. This is because cerebellar abscess rarely is accompanied by those putrid brain areas, which we see in temporal abscess.

Therapeutics.

Surgeons and ear specialists in Germany have agreed that the operation for otic cerebellar abscess must begin with operating on the diseased ear. Whether we begin on the mastoid, or, as suggested by von Bergmann on the squama immediately over the outer auditory canal, the same results are reached. From my own results I prefer the first method.

We do not always have a very clear case before us, not rarely the symptoms are due to extradural abscess or local gangrene of dura, and the patient is therefore in better condition if he has no opening in the skull covering after operation, even if it is covered by muscles and skin. If we conclude to thus operate in sinus phlebitis and cerebellar abscess, I fear that the skull defects will be necessarily large.

In England, despite the researches of Macewen, the views are at not all the same. Percy Dean reported a method in 1892 which I think has done much harm. Dean trephined the mastoid in a case of chronic otorrhea, and on account of caries, he exposed the sinus. Nevertheless, the brain symptoms did not disappear, and as he then thought of the possibility of abscess, without having reason to think whether it was temporal or cerebellar, he then, after 14 days, put the trephine over the lateral sinus, placing the point of trephine 1 inch behind and $\frac{1}{4}$ inch over middle of meatus auditorius externus (in a fourteen year old child). The gap was widened over the sinus

with a bone forceps toward the front and upward, and temporal lobe was punctured. Nothing being found, he enlarged the opening in the bone backward and below, and succeeded in emptying a cerebellar abscess. The advantages put forth for this method, are that it is convenient and quick and that in one sitting we can puncture both regions of the brain; this would be a very convenient method if we are to consider the difficulty of diagnosis between temporal and cerebellar abscess, especially in a right-sided otorrhea. I have nothing to say against this method, providing we have absolutely no means of locating the abscess beforehand; however, I may say that if the case turns out to be a temporal abscess, the bone opening lies too far to the rear. One has said: In the foregoing case the middle ear did not seem much diseased, one might ignore it altogether and trephine at once. Can we conclude that the pyramid is not diseased, in view of the pathologic findings upon the pyramid in intracranial complications even where the mastoid is intact.

Especially in cerebellar abscess we are not able to make a positive diagnosis, and we can not omit that efficient aid, namely, a careful inspection of the posterior wall of the pars petrosa after trephining the mastoid. We have seen that a careful chiseling of the mastoid may lead directly to the abscess, the presence of which we suspect in cerebellum, without having the right to make a diagnosis. We have another class of cases, in which general brain symptoms and some local symptoms point to a purulent process in the posterior fossa, but we cannot state positively whether it is cerebellar abscess, pachymeningitis, or sinus thrombosis that causes the symptoms. These are cases in which a certain procedure leads to or aids diagnosis; namely, to chisel the mastoid and then after clearing out debris from dura and sinus to make a careful observation. Therefore it is important to remember, where we suspect cerebellar abscess, that we should open the mastoid, and then with plenty of light we are to carefully expose and observe the region of the sulcus sigmoideus, the posterior and median wall of the antrum mastoideum throughout the whole extent.

After exposing the posterior fossa beginning at the mastoid, it is advisable to undertake a puncture. This has advantages over puncture behind the sinus and after trephining over the same. We produce no new wound, especially no defect in outer skull vault, and we have more chances to reach a small median abscess than in the second method. It is also more valuable in large abscesses, because we can approach it from any side. In order to find a small median abscess, we must penetrate, from the trephined

opening behind the sinus, through 3 to 5 cm. of brain substance, and if we point the knife downward and toward the median line, we are liable to injure the facial or acoustic or the sinus, and we are working in a great depth to which we must add the thickness of bone and soft parts, and from an opening that is uncertain and inaccurate. How easily in this case we can err, how uncertain to work blindly in such a depth, seeking another opening.

I have my doubts that the pus will always make its appearance through a canal that is several cm. long and that passes through normal brain substance, even if the point of the puncturing knife has penetrated a walnut-sized abscess. If the puncture is without result and if nevertheless we have reason for believing the existence of an abscess, we can easily puncture the temporal lobe by working from the mastoid cavity, this being a good place for the procedure. In these doubtful cases the tegmen tympani and antri has usually been more or less removed on account of caries.

Several operators, who punctured the temporal lobe and occipital lobe after trephining, have concluded, to puncture the cerebellum through the tentorium, using the same bone opening. In a few cases of large or median abscesses they had luck with their method, in other cases, however, they could not find the abscess. I think that this method depends too much upon luck.

It seems impossible to make a reasonable and conscientious search for a trephining opening over the temporal lobe. Besides, we, in this method, penetrate into the arachnoid space three times, which is certainly not to be recommended.

Should we open the dura before puncturing? I think it better to do this only if there is a special indication. If we avoid opening the dura, then we avoid cerebral hernia and its dangers, which frequently has followed a resultless trepanation. A puncture through the intact dura is harmless, if we observe the necessary precautions. Even granulation formation is no contra-indication, as we can scrape off the granulations and disinfect the dura before puncturing. In purulent and necrotic processes of the dura, we do best by exposing the whole extradural collection if possible, disinfecting, and treating antiseptically for a few days. If in these cases there is some urgent indication we may trephine at any point we think best, and puncture from there. If we do not want to do this it is preferable to have a broad split in the dura and to follow this with puncture. The puncture through the diseased dura is simply a septic vaccination; upon splitting the dura, the stream of the arachnoid fluid with wandering noxious substances flows outward; until a protective

adhesion is formed between the brain coverings, we tampon with iodoform gauze. If we have punctured with a knife, of course we must open the dura.

If we do not reach our object by puncture, we can then, after opening the dura, enter in a manner with which we had success. We endeavor to find fluctuation by palpating with a sound. I am inclined to believe that this will be more often successful because the abscess is apt to be situated in the anterior portion of the cerebellum, close under the upper surface. At that time I used a pliable aluminum sound with a thick knob. With such a sound, after giving it the right bend (namely a flat bending for the upper surface of cerebellum and a bending of the tip for the palpation) we can very well determine the consistency of the brain, we can easily reach far toward middle line, without having to fear that we will injure any thing.

I will here say a few words regarding puncture of the arachnoidal space for purposes of diagnosis; this procedure after opening of the mastoid seems never to have been attempted to my knowledge. In two cases of meningitis, I pushed the needle of a Pravaz syringe through the exposed dura, into the brain substance, there was drawn into the syringe some fluid, mixed with blood; enough for a microscopic and bacteriologic examination. If the syringe aspirates nothing, there are two possibilities: either we have punctured at a point where the dura and brain have grown together, or the patient is normal in this respect and the arachnoidal fluid is scanty and consequently difficult to aspirate. When the latter is the case, I cannot say, as I have not observed it. Suppose it is impossible, nevertheless we ought to be able, with due care, to bring a puncture needle between the dura and brain. If we can then freely move the needle, without being able to aspirate any pathologic fluid, we can take it for granted that the arachnoidal space is not much changed. If there is an adhesion or obstruction, then probably an abscess exists in the vicinity. These diagnostic speculations may of course be enlarged upon, but we had better wait for a little further practical experience. I believe that this puncture is more valuable than the lumbar puncture.

To the puncture from the mastoid, we can add the opening of the abscess. This was done only in one case of Schwartze and Macewen and one of ours. They met with pus, which appeared at the inner side of the sinus through a dura fistula, and opened the fistula and abscess at the same time. Authors agree upon this method although Macewen is the only one to offer us a reason or example. From this point he reached the abscess, the contents were turned out, and it was properly washed out and drained.

He fears to leave behind deleterious matter and sloughs, and opens the abscess so wide that the contents can easily flow out; he then washes the cavity with solution of boric acid or 1 per cent. carbolic acid solution until the fluid comes out clear. The water enters through a small canula with small pressure, while its outflow is procured by another canula.

Against this I would recommend opening from mastoid. We can operate better at the outer skull bones than in a cavity, where it is difficult to handle the instruments, and which must sometimes be artificially illuminated. But we must take into consideration the fact that there remains a defect in the outer skull bones, which as a rule forces the patient to take special care of himself at all times. It is also doubtful if we can reach every small median abscess from a point behind the abscess sinus, as we have described in connection with a puncture for diagnostic purposes. There are nine small lateral abscesses to two small median abscesses which have been found after trephining, according to statistics; the abscesses were found $1\frac{1}{4}$ to $1\frac{1}{2}$ inches deep. After we have determined the situation of an abscess, by puncture from mastoid, then we will probably be able to trephine and easily open a median abscess; drainage through a canula through healthy brain substance is not difficult, even if the abscess lies deeper than the level of the trephine opening.

Regarding opening at the mastoid, the next question is "can we expose enough of the surface of the brain? It is difficult to make an opening of the size of a 50 pfennig piece upon the posterior surface of the pyramid, and we must also be careful in widening toward the median line that we do not come in contact with the lower semicircular canal. Therefore take note of its situation. The inferior semicircular canal enters near the posterior wall of the pyramid, perpendicularly. At first it is near the surface right under the superior petrosal sulcus, then passes deeper into the pyramid, going farther and farther from the posterior wall. The highest part of the posterior bend of the lower semicircular canal is nearest to the anterior edge of the sulcus sigmoideus, but the distance in a temporal bone in my possession is 0.5 cm. Put a tangent to the horizontal semicircular canal, that will cut perpendicularly the posterior pyramidal wall, and it will pass close to the highest part of the inferior canal. Therefore it is possible to pass by the semicircular canal and to go from antrum obliquely forward and toward median line, and secure a route to the posterior cerebral fossa. The spongiosa which covers the ivory-like semicircular canals, is a good guide for chisel and forceps. The surface of

the exposed dura is mostly taken up by the sinus, nevertheless after removing the anterior wall of the canal, we can see and cut a large piece of dura. If the sinus be thrombosed, as it often is, we can lengthen our incision to include the sinus if we think it advisable. In a cerebellar abscess we do not need such a large surface of brain as in temporal abscess, since the former has not such large necrotic shreds of brain tissue, which require such a large opening of the abscess walls in temporal abscess. We can wash out from the mastoid. In our cases we use iodoform in alcohol and ether, but we could have used other antiseptics. There may be cases in which the relations, or conditions, at the posterior pyramidal are so small as to make a washing of the abscess more or less unsatisfactory. I think that we can omit the washing. We need not help the pus out, as it will come out of its own accord. It is surprising how quickly the drain becomes dry. We would remove the drain on the seventh day, but we might have done it on the second dressing because there was then no further secretion to be let out. Winter and Deanesly found no secretion after third day, nevertheless they drained for three weeks. We can take it for granted that the intracranial pressure is sufficient to cause the abscess walls to approach each other and to heal.

In this relation, Macewen almost entirely does away with drainage. In acute abscess, the place of the abscess is filled up in a few hours, and drainage is used only when we are not sure that we could wash out all of the sources of infection. In chronic abscesses, the space is only slowly filled up, and it is recommended to use a decalcified absorbable drain, which must just reach to the abscess. Non-absorbent drains are used only in chronic abscess with putrid contents, but they should not be left in more than 48 hours. Macewen fears that the drain may irritate the pulsating brain by rubbing against it; if we use a drain, take it out as soon as possible.

Macewen in three cases procured prompt healing without a drain, and in a fourth case (a large abscess) he used an absorbable drain and had good results.

We cannot positively prophesy the future of an opened abscess. Harrison found at an autopsy, 48 hours after operation that there still existed an abscess cavity which contained pus, and it had no sign of a membrane. In a second case, 7 days after operation, he found at autopsy, an abscess cavity (empty), the size of a walnut. He does not state whether or not there existed a membrane in this case. Milligan and Hare found at autopsy, 22 hours after death, an (empty) abscess cavity with walls in contact despite the fact that a distinct membrane existed.

On the other hand, none of the fortunate operators have noticed a damaging or harmful action of the drain upon surrounding brain tissue, despite the fact that in some cases the drain remained in for weeks. Finally we must not entirely put aside a good and thorough washing out of the abscess cavity. The cerebellum is especially a situation where abscesses often lie just below the surface, and the covering over them is so thin, in some places, as to break or tear upon slight pressure. This shows how abscess contents may spread under the tentorium or somewhere in the arachnoidal space, and lead to meningitis.

It is probably best in cerebellar abscess to introduce a drain after opening, and to allow it to remain until perfectly dry. This is usually a period of 2 or 3 days; say in 4 to 6 days we can remove it. The drain must have a certain stiffness, so that it may not yield when pressed between the border of the bone and the brain hernia, which quickly forms. Schwartz noticed this in one case. The point of a Nelaton catheter is to be recommended for drainage.

The opening through the mastoid has the following advantages: We can reach every cerebellar, perhaps we can reach less conveniently the lateral, but the median far more certainly and better; we also avoid a defect in the outer surface of the bony brain covering, which we must most carefully protect.

In our cases after the treatment of the ear offered no serious obstacles; the result we might call ideal. However, if we have to deal with cholesteatoma or a severe caries, so that it is impossible to remove all the diseased tissue, then the prolapse of the brain may involve prolonged and tiresome after-treatment. In such cases, which necessitate a permanent opening behind the ear, it is recommended to avoid prolapse and defect in the posterior pyramidal wall by making a skin flap from the region surrounding the ear.

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PERICHONDritis AND NECROSIS OF THE ARY- TENOID CARTILAGE.*

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Laryngologie*, July, 1898.)

Perichondritis of the arytenoid cartilage is due, in the majority of cases, to a tuberculous process in the larynx, although it may also follow syphilitic inflammation, typhoid fever and malignant processes; occasionally diphtheria and traumatism result in perichondritis.

Of 32 cases of perichondritis of the laryngeal cartilages collated by F. Bosworth (1), from which tuberculous cases were excluded, 9 were due to syphilitic lesions, 11 followed enteric fever, 1 each from diphtheria and traumatism, 2 in which lordosis of the cervical vertebræ were probably responsible for the inflammatory process, and 9 were of the so-called "idiopathic" type. Of these cases, 23 involved the cricoid, 4 the arytenoid, 3 the thyroid, 1 the cricoid and thyroid, and in 2 cases all the cartilages of the larynx were involved.

The arytenoid cartilages are considered the most frequently affected by Schroetter (2), tuberculous lesions being probably excluded in forming this opinion. In collating 55 cases of perichondritis following typhoid fever, Luening (3) found the cricoid cartilage involved in 22, the cricoid and arytenoid in 14, the arytenoid in 9, the thyroid and cricoid in 5, the thyroid, cricoid and arytenoid in 3, and the thyroid in 2 cases. Florman (4) reports 3 cases in which the excessive use of the voice was the etiologic factor.

In the majority of cases, however, perichondritis of the

*Read at the annual meeting of the Société Française d'Otologie, etc., May, 1898.

arytenoid is due to a tuberculous process, the ulcers usually developing on the posterior part of the larynx. When the mucous membrane over the arytenoid cartilage takes part in the pathologic process, the perichondrium may be destroyed and the cartilage exposed. Necrosis, therefore, is a natural consequence. It is not always easy to make the diagnosis by the laryngoscope or the sound, but arytenoid perichondritis may be suspected in tuberculous laryngitis when there is a chronic inflammatory edema of the tissues surrounding the arytenoid cartilages and those of Santorini and Wrisberg.

A point of strong diagnostic importance is the immobility of the arytenoid cartilage taken in connection with the pathological signs already described. Paralysis is easily excluded, and a careful examination and history of the case will exclude extensive mucous exudation, etc. When the inflammatory process around the arytenoid cartilage is sufficiently prominent, there is difficulty of deglutition and often dyspnoea, the former being more marked, as the inflammatory swelling of the mucous membrane is usually more prominent on the posterior side of the arytenoid and less so on the anterior. The *sinus pyroformis* of the affected side is diminished in area, this being sometimes quite marked.

In the more severe acute cases of perichondritis of the arytenoid cartilage, an abscess is formed, the discharge usually taking place in the neighborhood of the *processus vocalis*, although not infrequently at the extremity of the arytenoid cartilage or through the pyriform sinus. In chronic cases this result may be retarded, or even absent this being especially the case in syphilitic conditions where the pathologic process sometimes improves rapidly under operative treatment. Several cases of perichondritis of the arytenoid are well illustrated by John Schnitzler (5).

When ankylosis develops, there is hoarseness, which may extend to the point of aphonia. There is usually considerable irritation in the throat, not only from the pus formation and swelling, but also from the effects of the inflammatory swelling on the opposite side of the arytenoid. In a case in my practice, the exposed part of the

necrosed cartilage caused an ulceration of the opposite arytenoid from friction and irritation.

Where there is necrosis, several months are required for the exfoliation, which is usually effected through the natural passages. In the majority of cases of perichondritis of the arytenoid cartilage, a permanent ankylosis of the crico-arytenoid articulation results, causing considerable vocal impairment. Necrosis follows in the large majority of cases. When one arytenoid cartilage has been eliminated, the soft tissues which it supports collapse and the median line is drawn over to the diseased side. The healthy arytenoid and vocal cords, however, tend to compensate for the defective parts, and, in some cases, to such an extent that the voice remains fairly good.

The following case of necrosis of the arytenoid cartilage is interesting for several reasons: the persistent elevation of temperature for years, without the exhibition of any tuberculous process except the perichondritis of the arytenoid cartilage, the non-development of other tuberculous symptoms, the recovery of the patient with unaffected voice.

Miss L. B., age 33 years, applied August 20, 1892, at the Eye, Ear, Nose and Throat Hospital. The patient's voice was husky and she complained of pain in the thyroid region and of much difficulty in swallowing: her temperature was 101.5° F. A laryngoscopic examination showed defective movement of the left arytenoid, and a projection at its posterior extremity, which subsequently proved to be the necrosing arytenoid cartilage. Palliative measures were at first used, but the case became progressively worse, and as the patient was becoming emaciated on account of the difficulty of swallowing, I decided to remove the projecting cartilage by means of the cold snare. This was successively done, and a histologic examination showed the piece extracted to be the necrosing cartilage.

This operation was followed by considerable improvement in the symptoms of the patient, and an ulceration which had developed opposite the diseased area from the mechanical irritation of the rough projection of the necrosing cartilage, now yielded to the application of lactic acid.

The site of the operation now began to develop excessive granulations, and six weeks later these had developed to such an extent that they caused serious disturbance in speech and deglutition, and the pain was again considerable. An examination with the probe gave no evidence of any further necrosis. The cold snare and lactic acid were repeatedly applied, but each time the granulations recurred.

With a view of effecting a radical cure, the electro-cautery was finally used and the granulation tissue carefully extirpated by means of a pointed laryngeal electrode. The patient had become accustomed to endo-laryngeal manipulations, and, after the parts had been thoroughly anæsthetized by a five per cent. cocaine spray, the application was made without great difficulty.

This time the result was satisfactory. The parts continued to heal, and two months later had entirely cicatrized. The left arytenoid cartilage had become shortened, so that the ventricular band prevented the vocal cords from being seen except on strong phonation, but there was no infiltration or pain and but little fatigue in speaking. The defective movements of the left vocal cords were compensated for by the increased action of the right, so that the speech was not perceptibly affected.

On Oct. 11, 1894, the patient had gained five pounds and was much improved in appearance. There was still an elevation of temperature of one to two degrees daily. By means of a laryngoscopic examination, the deformity, due to the shortening and fixation of the left arytenoid cartilage, could be clearly seen, but there was no pain or discomfort in speaking or swallowing. The laryngeal condition in this case appeared to be due to a tuberculous infection, this theory being supported by the family history and the continued elevation of temperature; but it could not be corroborated by a bacteriologic and physical examination, as these always proved negative.

A most interesting feature in this case is the continued elevation of temperature. The patient has been under my observation for six years, and although her health is fairly good and she complains of no discomfort in the

throat, the appetite and weight have improved, and a physical examination has at no time revealed any pathologic condition in the chest, I have never yet seen this patient with a normal temperature. It varies from 99 to 100.5°, and at one time, when I gave the patient a thermometer and requested her to register her temperature twice daily, it never varied from this peculiarity. Various medicines have been given her without effect, the best results, however, being obtained from arsenical preparations. There is undoubtedly some focus of irritation in the system of the patient, and probably of a tuberculous nature; but urinalysis and repeated physical examinations have failed to locate the diseased area.

The benefit of the electro-cautery application, which permanently removed the granulations, which the successive applications of the cold snare and lactic acid had failed to do, is an interesting point in this case. I call attention to this circumstance, as some authors not only do not advocate the electro-cautery in the larynx, but actually warn against its use. Lennox Browne (6), for instance, expresses his opinion in the following words: "While without the galvano-cautery in diseases of the nose, pharynx, mouth and tongue, I should feel deprived of at least one-half of my power to help the conditions for which I use it, I have a strong conviction that were I to employ it in such regions as the larynx below the glottis, to the pharynx below the same level, or to the œsophagus, I should introduce into my practice a new and grave element of danger."

Other laryngologists, however, have had good results from the application of the electro-cautery in the laryngeal cavity, and this has also been my experience with this method (7). I have used it successfully in several cases of neoplasms of the larynx as well as in the case here reported, and at no time with unpleasant complications due to the use of the electro-cautery.

The application, however, requires considerable manipulative skill, and the difficulties are far greater than when the electro-cautery is used in the nose or pharynx. The cautery point itself should be light, so that it may be brought to the required degree of heat almost instantly

and cooled as quickly; this is essential, as otherwise a spasmodic contraction of the throat of the patient may inflict injury on the adjoining parts. The current should be controlled by means of a foot-switch, as the contact-button in the handle interferes with the delicacy of this method.

The patient should also first be trained for the manipulations required, which will probably be necessitated by the ordinary treatment of the case. In some patients, the irritability of the throat is such that the electro-cautery, or other operative measures, cannot be effected through the natural passages. With patience, perseverance and proper manipulative skill, however, the majority of these cases may be treated without resorting to graver external methods.

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THE SUBMERGED TONSIL.*

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(Author's Abstract.)

In a goodly number of those cases applying for treatment for nasal catarrh or for ear trouble, in which a plainly apparent hypertrophy of the faucial tonsils does not exist, it will be found, upon close inspection, that there is present a certain degree of faucial fullness, which is markedly increased by causing the patient to gag.

The patient complains of post-nasal catarrh and possibly of recurrent attacks of coryza which, at times, cannot be accounted for by the finding of nasal deformities when a thorough nasal examination is made. Very likely a report is given that the appetite is variable, that nausea, from a desire to expectorate, prevents the eating of a hearty breakfast, and that constipation is a further cause for complaint.

Quite often a history is given of attacks of tonsillitis in the present or past, and a report that the throat is abnormally sensitive and easily affected by exposure during inclement weather, though, on the other hand, not infrequently a negative reply will be given when the query as to tonsillitis is made. If the patient is a vocalist the voice will be described as unreliable—a tendency to hoarseness being manifested after vocal exertion.

Heredity will be found to play a part in such conditions of the throat, the several members of the same family being similarly afflicted. While, when in a condition of

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repose, the fauces will seem roomy and, perchance, to the observers' eye not particularly at fault, still, when the patient is made to gag, a ragged bulging mass will be protruded from between the pillars, the surface thereof being studded with enlarged follicles, from some of which may be exuding whitish, cheesy masses of the size of a pin's head, or larger, the free escape of which is furthered by pressure, and in this way it can generally be demonstrated to the patient's satisfaction that a reasonable cause for trouble exists. These masses, when compressed, emit a fetid odor, and by microscopic examination have been found to contain pyogenic germs, pus cells and other deleterious matter, the daily swallowing of which cannot be otherwise than detrimental to the patient's health. They are, in fact, a frequent cause of chronic dyspepsia.* While these beads, as discharged singly, are usually of small size, there may be found, deep in the tonsil, collections of the same material of the size of a small pea. By the use of a fine probe, bent near the end at right angle to the shaft, it can be easily demonstrated that some of the follicles are a half inch in depth. In these cases the pillars, particularly the anterior pillar, will be found adherent to the tonsil, and, furthermore, somewhat thickened, so as to cause the tonsil to be more or less submerged.

In taking the histories of these cases, it will often be learned that a tonsillotomy has been done at some time in the past, and, while after that operation there may have been an improvement, in as far as the tendency to acute attacks of tonsillitis was concerned, still there has ever since been the history, as previously outlined.

Submerged tonsils may subtract from the faucial space as much as two cubic inches, and hence may have structurally quite a material effect upon the singing voice. In addition to their mechanical effect upon the voice the diseased secretion causes the vocal cords to be constantly bathed with an irritating material, which I regard as one of the most important underlying causes of hoarseness. After radical tonsillotomy, I have often had the patient report an improvement in the singing voice, with some

*Pyncheon: The Absolute and Permanent Cure of Tonsillitis. Alkaloidal Clinic October, 1897.

elevation of the high register and a consciousness of not requiring the muscular exertion formerly required in the execution of high notes. The lower notes are also strengthened, and the tendency to hoarseness diminished, even after prolonged use of the voice, as in dictating or public speaking. I have also frequently observed an improvement in hearing.

When there is present a diseased condition of the tonsil, the disease will be found to extend to its very base. By following the general principles of surgery the clear indication is for total removal of all diseased tissue, and to obtain this result I depend almost exclusively upon a procedure known as tonsillotomy by "electro-cautery dissection," to which I called the attention of the profession nearly eight years ago.* The instruments employed were described and illustrated in *The Laryngoscope* for February, 1897.

In order to overcome the ordinary intolerance of the patient for faucial manipulations, which, in the throats being considered, is far greater than in the normal throat, I direct one to practice several times daily for a few days the introduction into the back part of the mouth successively one or more fingers, a spoon handle and the handle of a tooth-brush, using them alternately as a tongue depressor and a soft palate elevator, thereby accustoming the throat to the different sensations of different substances, and have thus generally tamed the most intolerant throats. It is not wise to operate when there is present any degree of acute inflammation, hence before operations I devote a few days to getting the throat in its best possible condition by the frequent use of gargles; and, if there be also present a nasal catarrh, I additionally order a "home treatment," consisting of the hourly sniffing of a small quantity of a mild alkaline solution.†

As a local anaesthetic I have been using a strong solution of cocain, either 20 or 33 per cent., with 10 per cent. of phenol added, which is applied with a cotton swab every minute or two upon the tonsil to be operated until benumbed, having the application also thoroughly extended to both

*The Journal of the Amer. Med. Ass'n, Nov. 22, 1890.

†Pynchon: Solutions Dobell, Annals of Ophthal. and Otol., October, 1896.

pillars on the same side. There is no advantage in using a weak solution of cocain as after being diluted with the saliva the strong solution I advise will be found to be weak enough. After cocainization I have the patient hold down one's own tongue with a specially designed tongue depressor. The tonsil to be operated is then grasped by a toothed spring forceps and pulled out well toward the median line, when a suitable electrode is entered hot and an incision made to separate the tonsil from its anterior pillar. In case the pillar is enlarged and seems to extend over the tonsil, then the incision is made where the posterior edge of the pillar should be. The tonsil is next similarly separated from the posterior pillar, the two incisions forming an apex above. Generally a series of short incisions are preferred. The tonsil is next loosened from its attachment behind and gradually dissected out until the upper half is free, when it is cut off by a transverse dissection with the same electrode. In some cases, wherein for any reason haste is necessary, the loosened upper half is cut off with a tonsillotome or curved shears. In the dissection care is taken to go in far enough so that all of the diseased tonsillar tissue is removed. In this way a comparatively deep wound is made and the lower half of the tonsil is left for a future operation.

For the operation I use a variety of cautery points bent at different angles to the shaft, varying from 30° to 90° . They are made in rights and lefts. I am particular to have the electrode sufficiently heated. A dull cherry red will not do good work. The rheostat lever is set at a point which will give a white heat in the open air after two seconds' pressure upon the contact button, and with longer pressure would be likely to fuse the electrode. In the tonsillar tissue such strength of current heats the electrode only to a sufficient degree to do good and rapid work, and thereby produces less pain than is caused by a lesser heat and slower burning. The electrode must burn and not tear its way through the tissue, and thus each vessel is sealed as it is severed.

When the operation is completed the wound is thoroughly painted with a strong solution of argenti nitras, say 90 or 120 grains to the ounce. Directions are given to gargle frequently with a solution of Merck's sodium bicarb., one

tablespoonful to a glass of water. Internally I order three drop doses of tinct. ferri chlor. in glycerin every two hours, to be swallowed slowly, and in alternation therewith a gargle of listerine and hydrozone suitably diluted. I furnish the patient with a printed sheet of directions telling how to use the medicines and giving suggestions as to diet, etc. There are also included direction to follow in case of hemorrhage.

I direct patient to call at the office each day for the first four or five days when, after spraying the wound with a D. P. solution, using a low air pressure, I apply with a cotton swab some "eisen-glycerin," which is made by mixing equal parts of tr. ferri chlor. and Merck's glycerin, with which I gently massage the wound. With these after treatments, regularly followed out, I find that the wound heals more smoothly, as adventitious granulations are thus kept in check. After the first five days I have the patient call every second day until the time of the next operation.

In from ten days to two weeks' time I take the next step by beginning at the point where the first operation ceased and continue in the same manner as before, thus removing the lower half of the tonsil.

After a similar interval I begin on the opposite tonsil and do as I did with the first. In this way both tonsils are removed by the four attacks or steps, and the time required varies from forty to sixty days. Formerly, and for a long time, I removed the entire tonsil at one sitting, but the present method gives less after annoyance and reduces to a minimum the likelihood of hemorrhage. By the former method I met with a few smart hemorrhages while by the latter method hemorrhage is a rarity and has at no time been pronounced.

With a tolerant throat the operation, meaning one step, is generally completed in ten minutes' time, and in a few cases I have even found five minutes to be more than sufficient. The burnings are of from two to five seconds' duration when a rest of from ten to thirty seconds is taken. I have often operated with so little hemorrhage as to not even discolor the saliva.

If the battery works properly the only bleeding met with may be from the use of the toothed spring forceps, which, by the way, is often the only source of pain of which the patient

makes complaint. If, while operating, a small vessel is observed to be bleeding, I at once touch the bleeding point with the heated electrode which is very likely to seal it. I have found the best hemostatic to be strong solutions of argenti nitras, ranging up to 180 or 240 grains to the ounce. When the hemorrhage is stopped I proceed with the operation.

In order to do away with the tendency to hemorrhage during the night I direct that for the first two or three nights the patient sleep with the head and shoulders somewhat elevated. Should hemorrhage at any time come on the most efficient treatment is the use of a gargle of very cold iced water, made by adding a little water from time to time to a glassful of broken ice, in which can be dissolved a teaspoonful of powdered alum. Frequent or continuous garglings with this compound will generally prove efficient. In the printed directions is given the formula for Morell Mackenzie's tannogallic acid mixture with directions for use. Ergotole hypodermically is also to be commended.

While considering hemorrhage the proximity of the tonsils to the carotids will be suggested. In the normal arrangement the nearest carotid is one-half inch from the base of the tonsil before it is drawn outward, and by this means the distance is increased to one inch, as the loose cellular tissue posterior to the tonsil is generally very yielding. The only serious danger of hemorrhage during any tonsil operation is due to the possibility of meeting with an anomalous distribution of the vessels. The greatest danger of secondary hemorrhage is dependent upon either kidney trouble or upon the tendency to hemophilia.

It might be thought that so free a use of the electrocautery would insure cicatricial contractions. Such is not the case, as mucous membrane is not affected by burns as is the skin. The eventual result is to leave pillars of normal form and character. The worst cicatrices, if I may so call them, with which I meet, are the stumps often remaining after an ordinary amygdalotomy.

While in this paper electrocautery dissection is being advanced as a desirable method of treating the submerged tonsil, I employ the same procedure in removing tonsils partially submerged, and for the separation of tonsillar

adhesions to the pillars prior to an ordinary tonsillotomy. In any case wherein hemorrhage might be looked for, as in a fibrous tonsil in the adult, it is indeed the method of selection, and the same may be said of this operation in those rare cases wherein tonsillar calculi are met with.

This operation, though originally designed for adults only, I have been latterly employing with children as young as 7 or 8 years, the only difference being that less is done at each sitting and the number of steps increased while the interval between operations is decreased. In this operation, as usually done, the after soreness is more pronounced after the removal of the upper half of each tonsil than after the removal of the lower halves. This is due to the fact that in operating on the lower half the wound is more shallow as the upper half extends in much deeper. In fact there is generally the greatest reaction after operating the first half of the first tonsil, the succeeding steps being comparatively easy.

In reply to all the fanciful objections to removing the tonsils, and in addition to what has been previously said, I will add that when tonsils are diseased, as they surely are in the condition described, their functional capacity is irrevocably destroyed and therefore, in accordance with the principles of latter-day surgery, the only possible indication must be for total ablation.

COLUMBUS MEMORIAL BUILDING.

ACUTE SUPPURATION OF THE MIDDLE EAR.

BY JAS. E. LOGAN, M. D.,

KANSAS CITY, MO.

Acute suppurative disease of the middle ear is not of common occurrence, compared with the frequency of other types of active inflammation of this organ.

Causes.

The causes may be classified under two heads, as follows:

(1) *General*.—Such as exposure to cold, climatic influences, etc.

(2) *Specific*.—Such as exanthemata, typhus and typhoid fevers, pneumonia, diphtheria, influenza, operations in the nasal and post-nasal spaces, presence of foreign bodies in the tympanic cavity, douches, etc.

General causes act only indirectly in the production of this disease after manner exerted in other affections of mucous-membrane-lined cavities, giving rise to what we understand as acute catarrhal inflammation. Sudden determination of blood to the part, turgescence of membrane causing obstruction to the ventilation and drainage, the accidental entrance of infected air, all conspire to produce the migration of pus corpuscles.

Specific causes act by the direct introduction of septic material through various channels to the middle ear. The purulent discharges found in the pharyngeal vault accompanying the exanthemata, diphtheria and the like, gain entrance through the Eustachian tubes. The blood vessels may convey the virus of typhus or typhoid fever to this delicately lined cavity. Inflammatory processes existing in the labyrinth and about the base of the skull may extend to the tympanum.

Extensive research by competent pathologists fails to

disclose the fact that micro-organisms are essential to the development of suppuration within the tympanum. Zaufal and Rohrer and others have spent much time in the isolation of a germ distinctive of this disease, and much interesting literature has been contributed by them. Zaufal found the following organisms in the pus from this cavity: *Streptococcus pyogenes*, *pyogenes albus* and *aureus*, *cereus albus* and *tenuis*, *bacillus tenuis*, *bacillus pyocyaneus*, *micrococcus tetragenus*, *saccharomyces albicans*, *diplococcus pneumonia* and the *bacillus pneumonia* of Friedlander.

In no instance did he find one species operate alone, but the combined action of two or more served to maintain the suppurative process. Rohrer found the cocci alone existed in the non-fetid secretions, while bacilli were abundant in fetid discharges. He also suggests that the presence of streptococci indicates a severe form of inflammation, and a liability to mastoid involvement.

It is possible for pus to pass directly from the cranial cavity through some canal or opening between the bones into the middle ear, causing an inflammation, with perforation of the drum membrane. Gruber has been able to diagnose this condition, and has reported cases to prove his accuracy.

Kohn reports two cases of middle ear suppuration during dentition. A number of cases are recited in which different foreign bodies acted as the specific causes. Fleischman found a barley grain upon post-mortem examination in the Eustachian tube. Heckscher relates a case where a raven's feather was found fixed in the tube, producing inflammation. Schall reports a case in which he found a small piece of rubber syringe lodged in the Eustachian tube. The indiscriminate use of nasal douches, diving into salt water and such like practices, are frequent causes of middle ear suppuration. The forcible entrance of these fluids, and the lack of adequate drainage to this cavity, serve as ample cause of inflammation. Operations within the nasal and post-nasal spaces are sometimes followed by this disease, due to the entrance of infected material.

Symptoms.

Deafness is usually the first noticeable symptom of this disease, followed closely by a deep-seated excruciating pain within the ear. An elevation of temperature ranging from 101° to 103° is manifest, which is in marked contrast to the slight fever of acute catarrhal conditions. Severe headaches are located about the affected side. Constipation is usually present, and the general appearance of the patient suggests marked constitutional disturbances. The symptoms are more pronounced in children than in adults. In the former, the attack is often ushered in by convulsions, while in the latter a severe inflammation frequently causes but comparatively slight discomfort.

Tinnitus is sometimes, though not always, present in the early stages. Vertigo may, likewise, exist. The area of pain gradually increases and continues, until natural or artificial measures for its relief are found. A temperature above 104° betokens a serious condition of the patient, leading one to suspect the involvement of brain structures, or a sinus invasion, or both. This severe complication would hardly show itself previous to a mastoid inflammation. A very rare occurrence is that of labyrinthine involvement, and the symptoms denoting this are dizziness and nausea, in addition to those already enumerated.

The physical signs are of greatest importance. At the very onset of the attack we may be able to get valuable information from the inspection of the drum membrane. We will find it to be of uniform scarlet red, or yellowish red color. This is so intense as to destroy the outline of any blood vessels upon its surface. The handle of the malleus is usually hidden from view, while the short process presents a whitish yellow aspect. The membrana flaccida sometimes protrudes to the extent of touching the floor of the canal, excluding from view the membrana vibrans. Of course, this occurs only in those case where the vault is the seat of the trouble. In some cases we may find small localized bulging areas presenting much the appearance of granulations; we are to infer that the discharges are confined to pockets made by adhesions, the

remains of a pre-existing inflammation, or to folds of mucous membrane within the tympanum.

In some cases of sudden appearance such as follow measles, scarlet fever and the like, we may find the drum membrane in no way resembling the signs just given except in evidence of fluid. In other words, instead of a deeply reddened aspect we find a dull grayish white color, such as might be found in an old necrosing otitis. This is but a superficial epithelial necrosis, and can usually be made to disappear by applying the cotton pledget bathed in hydrogen peroxide.

Treatment.

Much difference of opinion exists in regard to the proper treatment of this disease. Some authorities insist that a conservative course gives the best results; while others of equal experience urge the employment of more radical measures. The conservatives advocate the use of such means as will alleviate the suffering of the patient without resort to surgical interference; in other words, they advise against paracentesis, while the radicals urge the performance of this operation upon the first evidence of fluid.

All agree that abortive treatment should be vigorously carried on in the initial stage. This consists in local blood letting by leeches in front of the tragus, by counter irritation with blisters, the use of heat (sometimes cold), preferably dry heat, and the internal administration of laxative or purgative.

My experience urges the use of as much as half grain doses of calomel every half hour until copious evacuation of the bowels is obtained. Injections of warm water into the ear from a fountain douche but slightly elevated, is of much benefit in relieving pain. The internal administration of tinct. of aconite does much good in lessening the severity of the attack by controlling arterial tension. Acetanilid, phenacetine or antipyrine in $2\frac{1}{2}$ to 5 grain doses to an adult every two hours will, in most cases, relieve pain.

Opium should not be given, if possible to avoid it, until the bowels have been evacuated thoroughly. This plan of treatment, if strictly carried out, will cut short many

attacks, even though symptoms of a severe form show themselves; in cases dependent upon general causes its efficacy is particularly noticeable. I believe that in such cases we get the best results by adhering to a conservative course of action, for I cannot help thinking that early paracentesis, by opening the way for direct infection, here leads to the changing of a simple catarrhal condition to a suppurative process. Would it not be just as well, to say the least, to wait a few hours or a day, even though some evidence of fluid exists, in the hope that our already planned treatment may be of sufficient aid to nature to lead to recovery? In most of these cases we lose but little vantage ground by delaying until spontaneous rupture takes place, and in many instances this never occurs.

I can call to mind two cases occurring in my private practice within the last year in which I yielded to the wishes of the patients, and delayed opening the ear. Both recovered without rupture and with no unpleasant results, although in each instance there was distinct evidence of fluid, together with other symptoms more severe than would indicate simple catarrhal inflammation. Quite the reverse of this conservative procedure is, I believe, indicated in those cases dependent upon specific cause. When a case gives a distinct history of a malady such as would give origin to septic infection, I think that we are in duty bound to open the cavity, and allow escape of its contents; the quicker the better. In these cases spontaneous rupture subjects the patient not only to danger of great destruction of the drum head and necrosis of the ossicular chain, but to the greatest of all complications, mastoid and cranial involvements.

Be careful in every instance to make a free opening—one that will not close up, and require a supplementary operation. The classical seat of this incision is in the posterior inferior quadrant, but it has always been my practice to open at the point of greatest bulging, and good drainage will usually be obtained. Thorough cleansing of the canal previous to this procedure is of greatest importance.

After drainage is well established, the duty of the surgeon lies in its proper maintenance, and in the employment of every means to insure strict cleanliness of the

canal. Having accomplished this, his work is done so far as the ear is concerned. Continued application of dry heat will facilitate the discharge. Injections of tepid boracic acid solution into the canal two or three times daily, followed by insufflation of the powdered acid, will preserve due cleanliness in most cases.

Inflammations of the nose or naso-pharynx should receive proper attention. Applications of 20 to 30 grain solutions of silver nitrate to the orifices of the Eustachian tubes, have proved valuable in my hands for the relief of tubal congestion. Granulations often appear about the perforation and in the canal after the first week of the discharge, and should be speedily removed. Tri-chloroacetic acid serves an admirable purpose just here. I prefer it to chromic, for the reason that its action is more limited, yet sufficient to destroy the growths.

The greatest vigilance should be observed at this juncture, with reference to the mastoid. Upon the first appearance of deep-seated pain in this region, with tumefaction about the tip of the process and enlargement of cervical and post-cervical glands, with sudden elevation of temperature, we should resort to the cold water coil used without stint, and to the administration of drugs for the control of the fever. In some cases I have found the use of the hot water bag, continuously applied, to be as efficacious as the cold; but when agreeable to the patient, cold is better. For the relief of the pain, which is always severe, nothing compares with opium. However, should constipation follow, due attention should be given to the bowels. This plan of treatment should be carefully adhered to until all symptoms disappear, or until their aggravation becomes so extreme as to leave no doubt of the involvement of the mastoid structures.

It is remarkably strange to see some of the most aggravated cases recover without operation. A very striking illustration of this occurred in my practice just a month ago. A young lady 19 years of age, with incipient typhoid fever, was suddenly attacked with acute suppuration of the middle ear. Within a few hours after the appearance of pain, distinct bulging was manifest. Paracentesis relieved the distressing symptoms. The discharge continued for three weeks, apparently improving as the

fever abated. Suddenly, in the fourth week, there appeared all the symptoms of mastoid complication. Marked elevation of temperature—great pain extending from auricle to occiput—swelling in front and behind the process, destroying its outline; protrusion of the auricle; difficulty in opening the mouth. Extreme debility of the patient tended to an aggravation of all these symptoms. This change occurred on Wednesday afternoon of the fourth week of her illness. I proceeded to apply all the remedies at our command in a very vigorous manner. She protested against the use of cold, so the hot water bag was applied in its stead. It was used hot to the point of endurance, and continued without cessation night or day until Monday morning. Two and a half grains of phenacetin was given every two hours, with an occasional dose of morphine. This was found sufficient to keep the patient fairly comfortable, and after the second day it controlled the temperature to a point below 101° .

Her symptoms, excepting the temperature, grew steadily worse, and on Sunday it was agreed, after consultation, that I should operate on Monday morning. I would have operated on that day (Sunday,) had her temperature not been normal, or nearly so. The hot water bag and phenacetin were continued, and upon my visit Monday I found a decided improvement in every particular. My patient grew rapidly better, and at the time of this writing she is perfectly free from both typhoid and ear disease. Her hearing in the affected ear is 40/40, her only discomfort being slight tinnitus, which is rapidly disappearing.

This was a case of undoubted periostitis confined to the process, but many symptoms were sufficiently severe to indicate cell inflammation. Delays are often dangerous, and a nice point sometimes it is to differentiate between a severe inflammation of the periosteum and a deeper structural invasion. The points of difference are sometimes hard to define, but they do exist, and he is most successful who exercises good judgment at this crucial stage.

One thing in addition with reference to the treatment of this and other acute middle ear diseases, and that regards the use of Politzerization, or catheterization in the active stages of inflammation. I fail to see any benefit to be derived from use of force to evacuate the contents of dis-

eased cavities like these. The material is soon reproduced, and to be effective it should be again quickly expelled. On the other hand, it is altogether possible to force these discharges into the antrum or cells of the mastoid, there to act as excitants of active inflammatory processes. I can recall two cases of mastoid disease that gave no signs of existence until after inflation. I had used every precaution to admit of free evacuation through the drum head; used as little force as possible to accomplish my purpose, and yet closely following this came the unfavorable symptoms.

My inferences may be wrongly drawn, but my results are more satisfactory when I refrain from inflation until all appearance of active inflammation and discharges have ceased.

MASTOIDITIS.—WHEN TO OPERATE AND HOW.*

BY ANDREW TIMBERMAN, M. D.,

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Of all aural affections there is none in which the responsibility for the proper advice and the institution of proper measures for its relief rests, so largely upon the general practitioner as it does in cases of mastoid involvement. The close relation to the acute exanthemata, the diseases of the upper respiratory passages, and other common affections, is such that he is, even in this day of specialists, usually the first professional consultant; and it, therefore, will depend upon his ability to properly differentiate the manifold evidences of an abnormal mastoid, to save, in many cases, not only the function of hearing but the life of his trustful patient.

The aural specialist should have knowledge of each of the many phenomena of mastoid disease. The subject, as briefly treated within the narrow limits of this paper, concerns matter of practical importance to the busy family doctor.

As regards when or how to operate but little will be said. I shall depend upon an inspection of these anatomical specimens, knowing that thereby a better conception of the various procedures and conditions will be obtained.

The harder question any physician or surgeon must answer is, not how to operate, but when to operate, demanding as it does a keen appreciation of all the attending phenomena and a discriminating estimate of their effect upon, first, the life of the individual and, second, upon the function of the part or parts implicated. If I shall succeed in accommodating myself to just such conditions as encompass the family physician, and then arrive at short and simple conclusions which will aid him in determining what course to pursue in these cases of mastoid involvement, I shall have served my purpose.

*Read before the Mississippi Valley Medical Association, Nashville, Tenn., October, 1898.

At the outset, the writer would express it as his opinion that the physician who fully realizes the dangers to which aural diseases, both acute and chronic, may lead, is more apt to give proper advice than one who is accustomed to regard them as troublesome sequelæ, beneath his dignity to notice. One large hospital has shown recently by its statistics that 1 in 300 deaths were directly traceable to diseases of the ear. To this number must be added, without doubt, a large number ascribed to other diseases, susceptibility to which was made easy by the lowered vitality occasioned by the absorption of the septic material from the aural apparatus. But, apart from the number of fatalities which they may occasion, and which causes us the most concern, though as yet little enough, the diseases of the ear should interest every physician because of their tendency to destroy one of the special senses, which is so conducive to his patient's happiness; and the preservation of this function will well repay the dangers and suffering of the most drastic surgical procedure.

Our subject implies a consideration of all conditions which lead to direct or indirect involvement of the mastoid. To know when to operate, one must be able to exclude the diseases which are often accompanied by inflammatory conditions over the mastoid without an actual involvement of the bone, and which quickly recede when the primary disease is properly combatted. Within the experience of every medical man will be seen cases of simple furunculosis and diffuse external otitis presenting as marked symptoms painful and swollen mastoids. The tissues are boggy, edematous and painful on pressure. Such diseases, as well as syphilis, must always be excluded before operating.

But there are two conditions most frequently met with in which mastoiditis is common and in which it should be regarded as the signal of danger. I refer to the acute and chronic otorrheas, which are so often brought to the attention of the family doctor for advice and treatment. Unlike a diffuse external otitis, and unlike a simple furunculosis, a true mastoiditis does here occur, and demands a prompt decision as to what shall be done. May we temporize and attempt to abort serious present danger, or may we operate at once, impelled thereto not alone by present

urgency, but by the knowledge that danger threatens even in a quiescent state of the disease?

It has long been a conviction with me that to the general practitioner, *one* of the best and safest guides is the etiology in a given case of mastoiditis. Manifestly the surgeon's aid should be sought earlier in those cases where experience and history proves that persistent and deep-seated structural changes occur, involving not only the function of the organ, but imperilling the life of the individual than in those cases where the disease usually is successfully combatted by simpler therapeutic measures, and where there is no great tendency to hasty and extensive destruction of tissues. The *tendency* to destructive effects must, however, be the criterion (we are speaking now of the etiology and its relation to the sequelæ), as a violent mastoiditis after some simple causative factor often may be easily combatted by simple measures, while a much milder form of the disease may demand the most drastic treatment. For example: We may have a violent action set up in the post-auricular tissues, as an accompaniment of a serous otitis of simple origin, which may quickly respond to the cold coil and paracentesis of the drum. On the other hand, a mild type occurs in tuberculosis of the mastoid which, nevertheless, will demand operative treatment.

As is well known, the infection of scarlet fever and diphtheria is an intensely virulent one. The tissues seem to be literally overwhelmed by the contagion, so that, even within a day or two, extensive sloughing of the mucous membrane lining the middle ear takes place, along with a perforation of the membrana tympani, which may be so extensive as to comprise nearly the whole of that membrane. Whether it be due to the swollen tissues interfering with the circulation, as Schwartz believes, or whether it be due to the action of the specific cause of the disease, as Politzer believes, is not pertinent from a practical point of view. The chief point for us to remember is, that its action is quickly destructive in its immediate effects, and that it is one of the most potent and frequent causative agents of chronic suppurative diseases of the ear, which are now recognized as the most serious of all aural affections. In recognizing this infection as the etiologic factor

in a case of mastoiditis, to my mind it constitutes one of the strongest arguments for hasty and thorough measures to control the disease. An early paracentesis of the drum, if possible, within the first few hours of the development of aural symptoms, combined with active catharsis and application of leeches and cold water may avert a threatened invasion of the mastoid, but hardly abort serious damage when once firmly established.

Mastoiditis occurring as a complication of those chronic suppurations wherein scarlet fever has played the chief etiologic role, will nearly always demand operative interference sooner or later, if a cure be expected. Sometimes the focus of osseous erosion left in its wake may be so limited, either to the tympanic walls or to the ossicles, that its removal may be accomplished and a cure thereby effected. The focus usually is, however, so situated that it cannot be reached, except through the mastoid. Often a cholesteatomatous condition exists, which, for its cure, necessitates the opening of the mastoid cells and a thorough eradication of the morbid tissue.

Within the past decade a new causal factor in mastoiditis has appeared in influenza. While in many cases it displays a mild type, in many others its action upon the tissues of the middle ear is, in virulence, second only to that of scarlet fever and diphtheria, so that if the process be not allayed within a few days by early paracentesis of the drum and antiphlogistic measures, opening of the mastoid cells is indicated. As in scarlet fever, safety lies in hasty action, rather than in temporizing measures.

Of the other infections none are so baneful in their influences so destructive in their tendency, nor so intense and hasty in their action. Determination upon surgical procedure, therefore, may be made with somewhat greater deliberation.

Keeping the etiology in view, we may divide our cases of mastoiditis into two classes, and note some of the clinical signs and symptoms which should influence us most in the determination of resorting to surgery for aid. The first class will comprise those complicating acute aural diseases; the second class, those complicating chronic aural affections. This division ignores primary mastoid-

itis, which is, however, infrequent. Now, how shall we care for them?

In mastoiditis, complicating an acute otitis, an early paracentesis of the membrana tympani should be done, at least as soon as cerebral symptoms develop, in order that these symptoms, so far as they may be due to the intra-tympanic pressure, may be relieved and good drainage secured.

Following this, the local abstraction of blood from the mastoid, either by leeches or by artificial means, and the application of cold (ice bag or Leiter's coil,) are our most potent aids. Absolute rest in bed and active catharsis are necessary and helpful adjuncts. The middle ear should be kept clean, if necessary, syringing with normal saline solution. If the pain is relieved, the temperature and pulse rate lowered, and cerebral symptoms disappear, the probabilities are that the patient will recover, provided that the infection is of a mild type, as in acute coryza or measles. It may be necessary to repeat the paracentesis a second, or even a third time. But if the infective agent is a virulent one, as in scarlet fever or diphtheria, the probabilities are not so favorable. Here paracentesis should be done as soon as aural symptoms develop, and any tendency to a recurrence or prolongation of the disease will be more safely treated by opening the mastoid than by prolonged efforts at abortion with milder therapeutic agents.

Prof. Schwartze says that if subsidence of the threatening symptoms, pain, fever or swelling, does not occur in acute suppuration within at most eight days, the free opening of the mastoid is indicated, I cannot but feel that if this period were shortened for the cases of scarlet fever, diphtheria and the worst cases of influenza, fewer cases of chronic suppuration would be engrafted upon the acute otitides.

Not infrequently a case similar to the following is seen: The patient has had an acute suppurative otitis with mastoid involvement, in which the cardinal symptoms of pain, fever and edema have subsided, but have not entirely disappeared. On deep pressure pain is elicited, and a very slight infiltration of the tissues is detected. A slight elevation of temperature, a half or one degree, is noted.

Patient feels rather well, making little or no complaint—an occasional twinge of pain on the affected side alone being mentioned. What to do with such a case will then depend upon the otoscopic examination, of which I have, thus far, made no mention. To my mind there is but one otoscopic sign, which, when present, invariably calls for operation in these acute cases.

There is certainly nothing conclusive about the bulging of the drum, the size of the perforation, nor the amount, odor or character of the discharge; but there is something conclusive in that condition of the cutaneous lining of the supero-posterior wall of the external auditory meatus, in which it shows a bulging downward and forward, carrying with it the membrana Shrapnelli. Be the case mild or severe, this condition is a sign of the involvement of the mastoid, and invariably constitutes an indication for opening the same.

In the second class of cases, or that following chronic suppurations, there is, it seems to me, but little need of discussion. An otherwise incurable otorrhea may well be regarded as a proper indication for surgical measures, so soon as it is settled that its origin is somewhere outside of the tympanic cavity. But *mastoiditis* in these *chronic* otorrheas is the final signal of an impending catastrophe, and for the physician to wait until symptoms develop indicating intra-cranial involvement is considered but little short of criminal negligence. Mastoiditis supervening on a chronic otorrhea is a menace to the life of the individual, and constitutes an imperious demand for surgical interference. The cases that one may see recover, in the course of an ordinary experience, should have no influence in the determination of the question.

Otosopic examination in these cases will show a greater or less destruction of the membrana tympani, often reaching to and involving the marginal ring and supero-posterior wall, the whole forming a crater-like opening into the recessus epitympanicus, into which a bent probe may be passed. Aurists now generally recognize this condition, of itself, as sufficient reason for opening the mastoid. They deem it imperative in an acutely inflamed condition of the mastoid, associated with a chronic otorrhea.

Conclusions.—Operative measures should be instituted:

1st. To preserve the function of the hearing, as well as to prevent a fatal issue.

2d. Earlier in mastoiditis due to scarlet fever, diphtheria and the worst cases of influenza than when due to colds, measles, typhoid fever, etc.

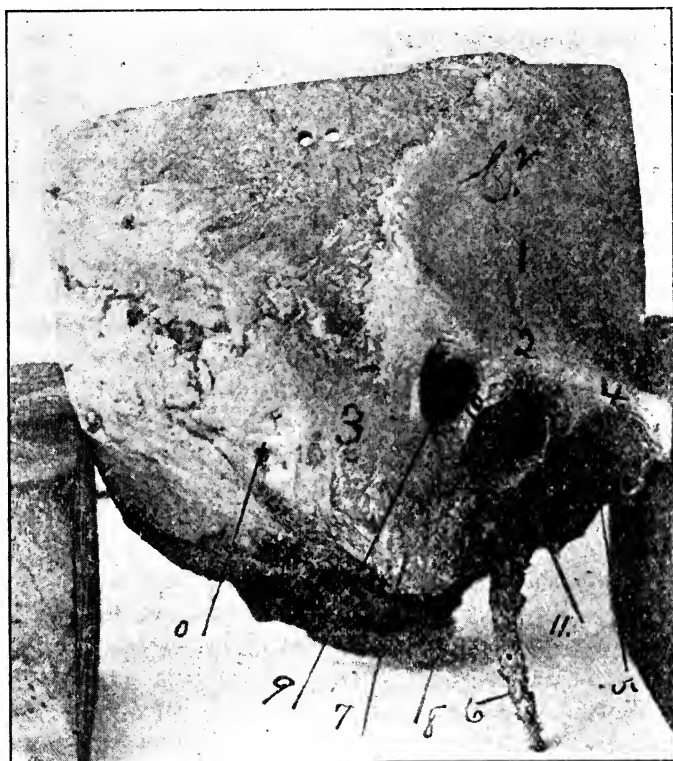


Fig. 1. Right Temporal Bone Illustrating the "Typical" or Original Schwartz Operation for opening into the Mastoid Antrum. 1. Squamous portion of temporal bone; 2. Linea Temporalis; 3. Zygomatic process; 4 and 11. Glenoid fossa; 5 for condyle of lower jaw, 11 for paratid gland; 6. Styloid process; 7. Tip of mastoid; 8. External auditory meatus; 9. "Typical" or Schwartz operation for opening into mastoid antrum; 10. Wedge of bone left between external auditory meatus and artificial opening into mastoid antrum; just right of the number 10 is seen the spina supra meatum indicating the level of the antral floor; 0. Mastoid foramen.

3d. In the acute cases of mild infection when subsidence does not occur within at most eight day (Schwartz). A shorter period is safer in a virulent infection.

4th. Recurrent mastoiditis due to any cause.

5th. In mastoiditis complicating a chronic suppurative otitis.

6th. In acute cases when there is a dropping of the lining membrane of the supero-posterior wall of the external auditory canal, carrying with it the membrani Shrapnelli; in chronic cases, when at the same place, a crater-like opening leads to the recessus epitympanicus and aditus ad antrum, even though, in neither case, symptoms immediately menacing life be present.

How to Operate.—Here I have promised to be brief because the anatomical specimens* will demonstrate better than words will express what is accomplished in each operation, only two of which shall be considered, and the steps simply outlined. The first is the “typical,” or original Schwartz method of opening into the mastoid antrum. It constitutes as well the first step in the second method, the Schwartz-Stacke or “radical” operation, which consists in the obliteration of the middle ear entirely so that we have an external and an internal ear only. Just when the first method is to be used to the exclusion of the second is not always easy to determine. A broad and general rule, quite elastic in its application is, however, to do the original Schwartz or “typical” operation in acute cases, and the Schwartz-Stacke or “radical” operation in the chronic cases. The latter is demanded in cholesteatoma, in sinus-thrombo-phlebitis, and in cranial abscess and localized meningitis of otitic origin.

†“The patient must be prepared, as is usual for a major operation, and a general anesthetic is necessary. Three assistants and a trained nurse are required for the “radical” operation. After the preliminary curvilinear incision is made, all hemorrhage controlled and os planum mastoideum well exposed, the ablation of bone is accomplished by means of a mallet and chisels. The two landmarks are the linea temporalis, marking the inferior boundary

*Exhibit before the Society.

†Quoted from a paper entitled “Intracranial Complications of Aural Disease—Prophylaxis and Treatment,” read before the Ohio State Medical Society, Columbus, Ohio, May, 1898.

of the middle cerebral fossa and the spina supra meatum marking the level of the floor of the mastoid antrum."

"In opening into the antrum several precautions are necessary in order to avert danger. The sigmoid sinus

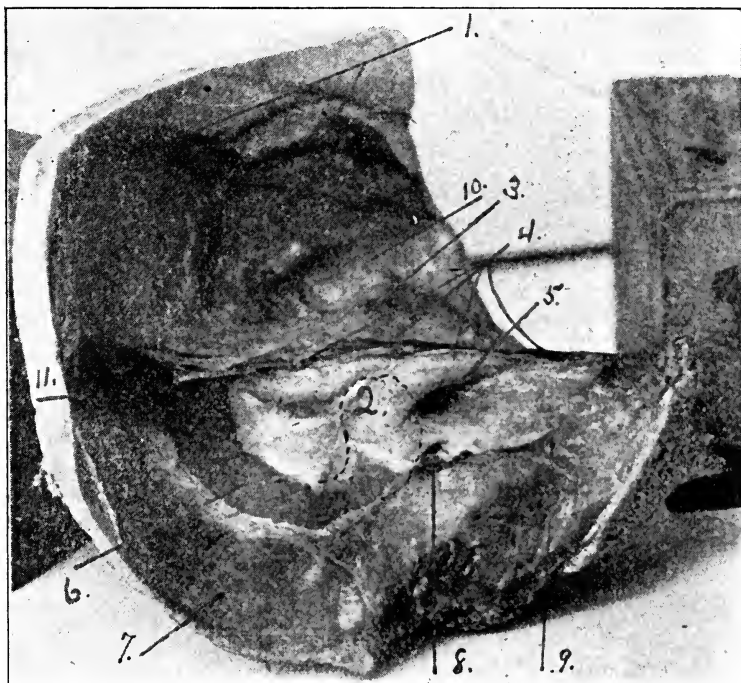


Fig. 2. Left Temporal Bone, Inner Surface. Dura mater in situ demonstrating very beautifully the relations of lateral, sigmoid, superior and inferior petrosal sinuses. 1. Reduplications of duramater; 2. Posterior surface of petrous portion of temporal bone. The dotted line shows position and form of the jugular bulb. 3. Eminence on anterior surface indicating situation of the superior semicircular canal; 4. Lines pointing to superior petrosal sinus; 5. Internal auditory meatus; 6. Sigmoid sinus; 7. Cerebellar fossa; 8. Jugular foramen; 9. Inferior petrosal sinus; 10. Lodgeus temporo-sphenoidal lobe; 11. Lateral sinus.

is usually so situated that sufficient room is afforded for the funnel-shaped opening to be made in the mastoid. Often, however, it is so near the posterior wall of the external auditory canal that it is impossible to proceed in the usual manner, but the posterior wall must be first re-

moved. Wounding this vessel constitutes the greatest danger in the operation, though wounding the facial nerve or penetrating into either the cranial cavity or internal ear structures is fraught with dangers, and must be avoided."

"On the completion of this first step in the operation there is simply the funnel-shaped opening into the mastoid antrum, with a ridge of bone intervening between it and the external auditory canal. No encroachment upon the tympanic cavity, its contents, or the aditus ad antrum is made. If perforation of the membrana tympani be present, as is usual, irrigation of the middle ear may be practiced, but should be discountenanced, as no one may say that erosion of some portion of the osseous wall has not occurred, exposing the membranes of the brain and, if this exists, irrigation increases the danger of pus finding its way into the cranial cavity. It is better, therefore, merely to cleanse with pledgets of gauze. To complete the operation the opening into the mastoid is lightly tamponed with gauze, the periosteum is replaced and the upper and lower portions of the wound sutured, leaving the central portion open to facilitate dressing and permit of drainage."

"The operation just described is known as the 'typical,' or original Schwartze method of opening into the mastoid antrum. Its success under given conditions justifies its application; its failure under given conditions has resulted in a more perfect procedure styled the Schwartze-Stacke or 'radical' operation."

"This is done as follows: After opening into the antrum the membranous external auditory canal is separated from the posterior wall, the ridge of bone is removed, as also are the hammer, anvil and the intervening and projecting spicules of bone; then the whole surface of the now single cavity of the middle ear is made smooth and freed from carious processes. The posterior membranous wall is then slit up as far as the concha and cut again at right angles to the first, thus securing two flaps, which are turned back to prevent cicatricial contraction of the membranous canal, as well as aid in epidermization of the cavity. The cavity is then lightly packed with gauze, both from the meatus and posterior opening, stitches are

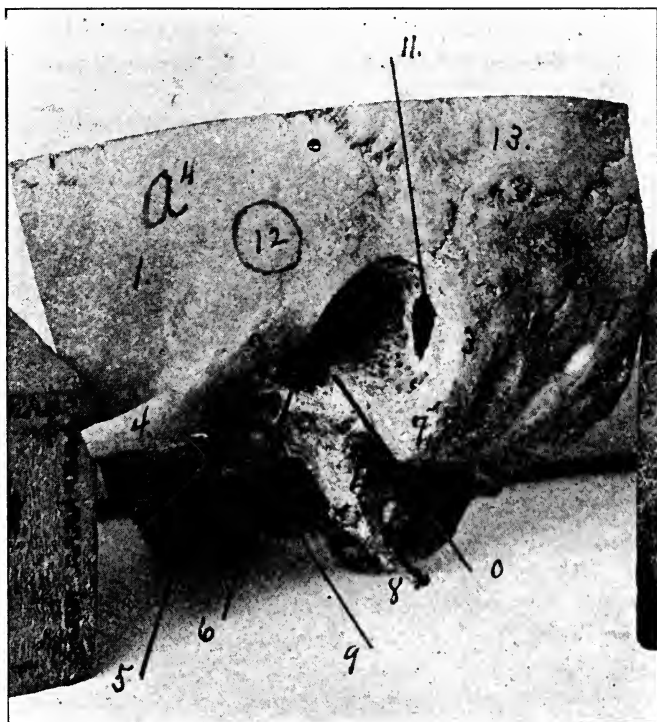


Fig. 3. Left Temporal Bone. Demonstrates the "radical" or Schwartz-Stacke operation for conversion of the middle ear and external auditory canal into one common cavity. Indicated in most intracranial complications of otitic origin, in cholesteatomata of the middle ear, and often in otherwise incurable suppuration of the middle ear accompanied by caries, etc. 1. Squamous portion; 2. Linea temporalis; 3. Mastoid portion; 4. Zygomatic process; 5. For condyle of lower jaw; 6. Tympanic cavity; 7. Tip of mastoid; 8. Styloid process bent inward; 9. Bristle passed through sigmoid sinus and having its exit from jugular bulb; 0. Ridge of bone left after chiseling away wedge of bone (10 in Fig. 1). This ridge is formed of compact bone and conceals the facial nerve. At the inner end of this bony ridge, a rounded tubercle of bone is seen which conceals the nerve as it changes its course outward and downward; here also is concealed the horizontal semicircular canal; 11. Sigmoid sinus exposed to view indicating how and where this vessel is approached in thrombosis; 12. Point for trephining for temporo-sphenoidal abscess; 13. Parietal bone; 14. Occipital bone.

inserted in the upper and lower angles of the wound and the head well bandaged."

"If there is one point in the care of these cases worthy of special emphasis, that point is the after treatment. No operation in the whole domain of surgery, which I can now recall, demands as much special skill and experience to properly conduct the after treatment as does the 'radical' mastoid operation; and this statement will be best and most heartily attested by those who, after a ripe experience in general surgery, have taken up the special work in aural surgery. The operation completed, the surgeon's work is only half done. To restrain excessive granulation, to guard against the formation of synechiæ, to prevent cicatricial contraction of the external auditory canal, and to secure complete epidermization of the whole cavity, and yet retain or improve the hearing function presents a problem that none but the experienced should attempt; for, be it understood, that in the majority of these cases not only is it the endeavor of the surgeon to cure the local disease, but to retain as well the special sense of hearing."

POSTICUS PARALYSIS. (PARALYSIS OF THE CRICO-ARYTENOIDEUS POSTICUS.*)

BY DR. A. KUTTNER AND DR. J. KATZENSTEN.

Translated by Hanau W. Loeb, A. M. M. D., St. Louis.

From the *Archiv für Laryngologie*, and *Rhinologie*, Vol. viii, p. 181.

In Vol. VI, of the *Archiv für Laryngologie und Rhinologie*, Grossmann contributed a paper whose aim was to show that Semon's teaching in regard to posticus paralysis was untenable, and in its place endeavored to establish a theory of his own.

By reason of the importance of Semon's law reaching beyond the limits of laryngology, it seems to us necessary to make a thorough investigation of Grossmann's objections and to examine critically his experiments in order to obtain the most uniform results. In this particular Grossmann aided us with the laryngometers and mouthgag which he used and Prof. Exner kindly tested the optical instruments required. We take this occasion to thank them both. Later we replaced the gag received from Grossmann by the instrument described by Cowl, in Vol. VII of Fränkel's *Archiv* which permits a fine view of the entire larynx. Musehold's magnifying tube was especially serviceable in permitting a very careful analysis of the movements of the vocal cords. By means of an objective provided with a millimeter scale, it was possible to measure not only all distances, but also all movements, excelling in this particular Exner's instrument. We are grateful to Dr. Musehold, who for some time lent us his own instrument.

Permit us to refer in brief to Semon's law, and in order to meet each of Grossmann's objections, exactly as he him-

*This masterly reply to Grossmann's attack upon Semon's theory comprehends a summary of Semon's views and Grossmann's objections as well as the arguments which the writers advance in agreement with the former and in opposition to the latter and therefore the translator has ventured to present it to his English-speaking colleagues. H. W. L.

self has stated it. It runs as follows:—"In progressive organic diseases affecting the trunk of the recurrent laryngeal nerve or its common origin, the abductor muscles innervated by the motor fibres of this nerve—the crico-arytenoidei postici—are regularly and invariably the first to become paralysed and degenerated, while the other muscles which receive motor impulses from the same nerve suffer the same fate only after further progress of the disease."

In regard to this law, three stages in the course of progressive recurrent paralysis can be differentiated in a manner somewhat schematic but exceedingly helpful to the understanding; each is characterized by a position of the vocal bands peculiar to it alone.

STAGE I. Simple paralysis of the crico-arytenoideus posticus. The vocal band on the affected side is oblique when at rest, its posterior end inclining about 2 mm. from the median line. In phonation and occasionally in forced respiration, it is drawn to the median line but returns to the above characteristic position on cessation of the movement.

STAGE II. Paralysis of the crico-arytenoideus posticus, complicated by secondary contraction of the adductors. The affected vocal band stands in or close to the median line and as long as the highest degree of contraction has not been reached, undergoes no phonatory nor respiratory movements.

STAGE III. Paralysis of all the muscles supplied by the recurrent. In this the adductor as well as the abductor fibres are affected and in consequence of this new paralysis, the contraction of the abductors disappears. The edges of the vocal bands are stationary, two to three mm. from the median line (cadaveric position.)

In opposition to these (Semon's) explanations of the laryngeal picture following disease of the recurrent, Grossmann has proposed a whole series of objections through which he seeks to prove that Semon's conclusions are not in accordance with facts. In order to facilitate matters, permit us to arrange these objections in accordance with the scheme just suggested.

Grossmann (page, 337) gives the first stage as follows: "In the beginning of the process, it is said, there regularly

appears, first a posticus paralysis. In this beginning stage, there is, of course, no thought of an abducted or median position as long as the abductors alone are paralysed. The vocal bands on the contrary continually shift their position according as the adductors contract or return to the position of rest. We must therefore recognize in contraction a median position, while in rest where the action of the abductors as well as the adductors is inhibited, a certain median position is taken."

Regarding the laryngeal picture Grossmann (page, 337) further says:—"This classic stage thus characterized where a primary posticus paralysis still exists by itself, we do not meet in the course of recurrent paralysis," and in another place (p. 339) "no one has, up to this time, seen a case of posticus paralysis, existing by itself, but uncomplicated by contraction of the adductor, and hence no one can speak of the peculiar position which results therefrom."

In answer to this we must say, as Semon in his answer to Grossmann, that this objection is to be explained only on the ground that Grossmann must have neglected the whole literature of the subject, for he could not have claimed that no man observed this stage, if he had known that many cases—Semon counts 22—had been reported which showed the position of the vocal bands in accordance with his *a priori* postulate and explained their occasional observation as an uncomplicated posticus paralysis.

Even in the six lines of his second paper which he uses as an answer to this argument (p. 394) Grossmann says nothing of the value of this clinical fact.

One of us (Kuttner) observed three such cases whose actual existence was confirmed by others. According to the view heretofore prevalent, the laryngeal picture in two cases was that of posticus paresis while the third was a typical posticus paralysis. The observation of these cases during the past six months confirms conclusively Semon's postulates; the left vocal band is about one to two mm. from the median line when at rest. The free border is slightly concave. Upon phonation, the left band as well as the right is drawn to the median line while the concavity on the left side does not entirely disappear. At the end of phonatory adduction, the vocal band recedes this distance from the median line without being drawn beyond the dis-

tance just mentioned. The right traverses two or three times as far in abduction and adduction and the left arytenoid cartilage is slightly nearer the anterior commissure.

We may for the present pass over the possibility that every other explanation of this laryngeal picture is unconditionally excluded; this observation as well as those previously related demonstrate that Grossmann was wrong when he asserted that such a laryngeal picture had never been seen. Thus the single objection to Stage I, rests upon Grossmann's error.

It is against Stage II, (stationary position of the vocal band) and Stage III, (the so-called cadaveric position) that the chief attack is directed, and yet it is not so much the actual clinical results leading to the promulgation of Semon's theory, against which he raises objections, but rather the significance of the clinical phenomena.

Heretofore, as already indicated, it has been accepted that the median position (Stage II), arises from Stage I, if a secondary contraction of the adductors is added to the primary posticus paralysis. The explanation of the laryngeal picture in Stage III, rests upon the previous supposition that a paralysis of the adductor fibres is subjoined to that of the abductor fibres. In consequence, it is thought that the former contraction of the adductor is lost and a sort of middle position appears, so far as it is not modified by the crico-thyreoid, the external musculature of the throat, the pharyngeal constrictors and the negative intrapulmonic pressure.

In opposition to this heretofore universally accepted explanation, Grossman sees in Stage II, i. e., vocal bands motionless in the median line, or as it is called, the "adduction position," an expression of a total recurrent paralysis with retained function of the crico-thyreoid, and in Stage III, i. e., vocal band motionless in the "cadaveric position," the expression of a total recurrent paralysis with simultaneous loss of function of crico-thyreoid. Grossmann bases these opinions upon a number of experiments which were arranged in the following order:—Animals were subjected to morphine-ether narcosis and both superior and inferior laryngeal nerves were exposed and placed within a loose loop. Then the normal width of the glottis during quiet breathing was ascertained by means of Exner's laryngo-

meter. This ingeniously constructed instrument allows to the subjective opinion of the practiced observer so slight a variation that it may be dismissed. Both recurrents were then cut and a new measurement made. A narrowing of the glottis invariably resulted. Then both superior laryngeal nerves were cut and the glottis was for a third time measured. This third test invariably showed a widened glottis when compared with the second measurement.

From these experiments Grossmann drew the conclusions that the vocal band after section of the recurrent does not as formerly believed assume the cadaveric position, by which he understands equilibrium, but rather an adduction position. For, otherwise, he thinks it would be entirely impossible for the width of the glottis after section of the recurrents to be increased by a subsequent section of both superior laryngeal nerves. Therefore Grossmann considers as incorrect the opinion heretofore generally accepted that the vocal band must assume the cadaveric position after paralysis of the muscles innervated by the recurrent, and further that it is incorrect to claim that the median position indicates a still persisting function of the individual muscles supplied by these nerves. For since the median position means nothing more nor less than an adduction position and since this as before shown appears after every section of the recurrent, it is entirely superfluous to seek other reasons for the median position.

These are the facts and conclusions upon which Grossmann's doctrine is built. But, since Semon's theory must be wrong if Grossmann's is correct, in addition to the positive part of his work he presents a second or negative part of which he seeks to prove that all the clinical, pathologico-anatomical and experimental observations upon which Semon based his theory are untenable and undemonstrable.

We first undertook the task of testing the positive part of Grossmann's work, i. e., the animal experiments which are the foundation of his theory. In this, we followed closely in the footsteps of our predecessor. As a rule the animals were placed under morphine-ether narcosis and rarely under ether alone; the mouth was kept open at first with Grossmann's gag, but later we used Cowl's. The width of the glottis was ascertained by Exner's laryngo-

meter and these measurements were verified by Musehold's telescope. In every instance, the measurements were made with the greatest guarantee as to accuracy. The experiments were made on dogs alone, but they were of greatest varieties of age, size, weight and breed. Inasmuch as the results agreed in principle it is well to present here a tabulated resume of the results of ten experiments. It will be observed—we will later return to this fact—that we have, in all instances, taken the smallest width that we could find. If the results of our experiments are compared with Grossmann's, it will be observed that both agree in principle; the normal width of the glottis, in quiet breathing, becomes decreased upon section of the recurrences; if this is followed by section of the superior laryngel nerves, it is increased. However, in spite of the agreement as to principle, there may be observed a difference, which, in our opinion, is not immaterial. The numerical values which we have obtained are greater than Grossmann's. He found as a rule in his dogs after section of the recurrences a width of 1.2 to 1.5 mm. (in 8 out of ten cases.) The narrowest glottis observed by us was 2.1 mm. in width (2

Number	Dog.	Age.	Weight Kg.....	Normal width of Glottis in quiet breathing.	After Section of				Narcosis.
					Both Recurrences.	Right Sup. Laryng.	Left Sup. Laryng.	Both Sup. Laryng.	
1	Bulldog.....	6-7 years.	30	v5.5	4.9	5.1	5.5	5.5	Morp. aeth.
2	Spitz.....	2 years.	3-4	v5.5	3.4	3.5	3.8	3.8	Morp. aeth.
3	Plnscher.....	4-5 mos.	3	v5.3	2.1	3.0	3.9	3.9	Morp. aeth.
4	Plnscher.....	4 mos.	2.65	v5.5	2.1	3.0	3.3	3.3	Morp. aeth.
5	Plnscher.....	5-6 mos.	4.7	v5.5	3.4	3.7	4.4	4.4	Morp. aeth.
6	Spitz.....	9 mos.	4.4	5.3	3.5	.....	.....	4.1	Aeth.
7	Teckel.....	2-3 years.	4-5	5.3	4.0	.....	.....	4.9	Aeth.
8	Spitz.....	4 mos.	3.2	4.8	3.0	3.3	3.6	3.6	Morp. aeth.
9	Hound.....	9 mos.	7	v5.5	3.9	.....	.....	4.7	Morp. aeth.
10	Teckel.....	2-3 years.	4-5	5.3	4.0	.....	.....	4.9	Aeth.

cases in 20) and this was very small and young animals, in full possession of their temporary teeth and weighing between 2.5 and 3 kg. How this difference is to be explained is not clear without further consideration—perhaps our dogs were older and larger than Grossmann's. However as it was our intention to explain the pathological processes in the human larynx by means of experiments

upon animals, it was thought advisable to use for comparison such animals, which, but slightly differ from the human in the general arrangement of their upper air passages. For as Grossmann properly observed and described, the negative intrapulmonary pressure plays a decided role in the consideration of the present question, and, therefore, it appears to us advisable to provide, at least, in some measure similar conditions for this important factor.

From the fact that bilateral section of the recurrents followed by section of both superior laryngeal nerves results in widening the glottis, Grossmann draws the conclusion that the crico-thyroid belongs to the adductors of the larynx. But, he considers, that it is impossible to believe that the vocal bands will be found in the cadaveric position, i. e., in equilibrium, as long as a viable muscle exerts its adducting power. He considers the non-recognition of this fact the prime flaw in Semon's theory; for so long as the crico-thyroid possesses function—and section of the recurrents exerts no influence upon it—the vocal bands will not be found in the cadaveric position (in equilibrium) but rather in an adduction position.

We have various objections to propose in opposition to these deductions which seem to be properly drawn. First of all, Semon never asserted that the position of the vocal bands which he designated as a clinical cadaveric position, meant the same as an equilibrium. He accepts, and his writings leave no doubt upon this score, this name given by Von Ziemssen only as a short and practical designation of that position of the vocal bands which appears in the usual picture of recurrent paralysis. He made it well understood, however, and this is known by Grossmann, that this position is subject to appreciable variation. There may be some question whether or not the name "cadaveric position" be well chosen; still Semon is not guilty of the error which Grossmann ascribes to him for he does not describe the position called by him clinical cadaveric position as an equilibrium. Both Semon and Katzenstein in their experiments have kept in mind the influence of the crico-thyroid muscle. Moreover at the 59th meeting of the Naturforscher, Semon drew attention to the fact that in recurrent paralysis the position assumed by the vocal bands during life was not entirely identical with the post mortem

position because in life the influence of the crico-thyroid comes into play and Katzentein says clearly and plainly in the conclusion of his work (*Virchow's Arch.* Vol. 128, p. 57.) "If I review my experiments I must conclude that the crico-thyroid is the stretcher and the tensor of the vocal bands." It was also known that the contraction of the crico-thyroid produces a narrowing of the vocal cleft. Onodi describes this action fully in his work on the "Innervation of the Larynx," (p. 77) but from his description it appears (and this is the difference between the conception of Semon, Katzenstein and Onodi upon the one side and those of Grossmann upon the other) that the crico-thyroid acts as a tensor and not as an adductor of the vocal bands. We have studied the action of the crico-thyroid in numerous cases in extirpated preparations and in living animals. If both muscles are made to contract simultaneously by means of the faradic current, the anterior bow of the cricoid will approach the thyreoid, the posterior part of the former going downward and backward. Both arytenoids which are firmly united to this by ligaments follow this movement and as the vocal processes, being an essential part of the arytenoid, share in this movement, the vocal bands are stretched and made tense. This stretching of both vocal bands is associated with a narrowing of the vocal cleft which indeed may be somewhat increased by the passive influence of the internal and external thyreo-arytenoids. If the right crico-thyroid alone is made to contract the anterior bow of the cricoid is again directed toward the thyreoid, but in correspondence with the obliquity of the muscle which passes from the middle to the right and upwards, the thyreoid is not directed upward in a rectilinear way, but during its ascent it is drawn somewhat to the right (this deflection towards the side is compensated for by the simultaneous contraction of both muscles). The movement of the anterior bow upwards and to the right corresponds on the posterior surface of the cricoid to a movement towards the left downward and backward which must be followed by both arytenoids, the vocal processes and the vocal bands. Thus by stimulating even one of the crico-thyroids, both vocal bands are stretched and made tense; but as both (by stimulating the right muscle) are drawn simultaneously from the right to the left, the

right vocal band approaches somewhat nearer the median line while the posterior part of the left is drawn somewhat away from the median line whereby a position approximating parallel vocal bands is obtained.

From these facts we think the conclusion may be drawn that Semon, Katzenstein and Onodi were correct when they described the crico-thyroid as a stretcher and a tensor of the vocal bands. The contraction of this muscle causes by stretching the vocal bands, a narrowing of the glottis, but from this fact it should not be called a simple adductor, for there is always a difference between adduction and stretching; if this view is not accepted it is also illogical for Grossmann to describe as an adduction that position which he thought was caused by the force of this muscle.

If Grossmann imagines that he can conclude by the above deductions that Semon's law is untenable because it is founded upon false premises, the demonstration of his theory is, in our opinion, unsuccessful. In the first place Semon did not at any time identify the clinical cadaveric position with equilibrium and then he did not undervalue the influence which the crico-thyroid exerts upon the position of vocal bands after section of the recurrences. The differences between the assertions of both authors lie more in the fact that Semon ascribed to the crico-thyroid (in connection with the intrapulmonic pressure) the property of exerting a certain influence on the position of the vocal bands after section of the recurrent but he denied with emphasis that this factor was as Grossmann insisted, able to bring about in total recurrent paralysis, the clinical picture of a permanent median position.

This is the kernel of the whole question and this Grossmann thinks he has confirmed by his animal experiments. He thinks that he has proved the statement that we can obtain by section of the recurrences in cats and dogs, a laryngeal picture which is identical with the median position which forms the basis of Semon's theory of *posticus-paralysis*. If this is true, then Grossmann is right and Semon's law, as a law, is untenable.

But is this true? Even if we accept Grossmann's experimental method unconditionally, although this is altogether favorable in his opinion because of the invariable section of the both recurrences, the sud-

denness of the injury and the proportionately narrow larynx of the animals upon which the experiments were made; even if we concern ourselves with the actual results, we believe the statement is true that the position of the vocal bands obtained by section of the recurrents in dogs is not identical with the clinical median position.

The differences are as follows:

I.—The laryngoscopic picture obtained after section of the recurrent in animals does not coincide with the picture heretofore found in posticus paralysis with and without secondary contraction. After unilateral section of the recurrent a true median position has never followed. While Grossmann observed a narrowing of the vocal cleft to 1.2 mm. after section of both recurrents, we have never witnessed so high a degree of narrowing in quiet breathing in a narcotised dog or in one free of narcosis. Animals which are chosen for experiment should not be too young or too small, otherwise the comparisons will be faulty.

Moreover a laryngeal picture which shows a vocal cleft of 3 mm. and over cannot be compared with a glottis of minimum width which it was formerly supposed resulted from posticus paralysis.

These differences are not referable to narcosis, for if the animals are examined while awake and if the vocal bands of the terrified animals are observed pressed together in the median line for ever so long a time, this median position will be seen broken from time to time by deep inspirations in which the glottis approaches the width found under narcosis—about 3 mm., which does not occur in the clinical median position recognized in posticus paralysis.

The laryngeal picture which has heretofore been recognized in posticus paralysis without contracture (Stage I) and whose existence was improperly denied by Grossmann, especially when unilateral, is so totally different from that of unilateral paralysis of the recurrent that a comparison between the two cannot be brought into consideration.

II.—The whole conduct, one might say, the clinical conduct, of animals in which both recurrents have been cut always presupposes that half-grown animals are used differing entirely from the patients whose laryngeal picture is explained by Semon as bilateral posticus paralysis and by Grossmann as bilateral recurrent paralysis. In our

patients we always find the highest degree of dyspnea; in dogs one would expect a still more violent dyspnoea inasmuch as the injury, differing from the disease in men, occurs suddenly. Instead of this, we find that the animals operated upon, move around, eat, drink and play as soon as the narcosis disappears, without any perceptible sign of dyspnea. We have seen some animals which have been subjected to the bilateral operation, suffer from noisy respiration for 3 to 5 minutes, but they did not exhibit such struggles as are present in men with the bilateral median position. Furthermore, in a very short time the breathing of the animals again became quiet and normal.

III.—According to Grossmann's own statement (p. 352) confirmed by Wagner and Grabower, the adduction or stretching of the vocal bands which is still to be observed after section of the recurrent disappears soon, i. e. within a few days at the latest. In decided opposition to this is the observation of numerous writers, who maintain that the median position, heretofore considered a bilateral posticus paralysis persists for months and years. This opposition cannot be removed by Grossmann's statement that dogs, even a year after section of the recurrent, when in fear or in pain, may show a high degree of narrowing of the vocal cleft. Grossmann has himself observed—and we can completely confirm his statement—that this same narrowing occurs after section of all the nerves of the larynx.

IV.—Semon based his theory upon numerous clinical observations some of which (and these include the strongest supports of Semon's law) may be supplemented by pathologico-anatomical investigation. In these cases the median position was found which remained unchanged for months and years. Section demonstrated a clear atrophy and degeneration of the postici while all the other muscles, as categorically shown, were normal.

Grossmann remarked that in these cases he deemed it improbable that any muscle would show an entirely normal appearance after a contracture of some years' duration. This objection, of which we shall later speak, may be debatable, and whoever deals with the question will be compelled to consider whether or not Semon's law is correct. At present we are not discussing Semon's theory, but Grossmann's and for this those cases are fatal.

For it is impossible to take as Grossmaann does, a total recurrent paralysis as an anatomical substratum for the clinical condition—median position—if the pathologico-anatomical investigation shows that only the postici have degenerated while all the adductor muscles which are innervated by the same totally paralyzed nerve, show a normal aspect.

To review the results of our investigations, we must conclude that Grossmann's arguments are not sufficient to prove his hypothesis, for

1.—The laryngel picture which according to his own statements establishes an uncomplicated posticus paralysis—this laryngeal picture which he insists has never been seen—has actually and repeatedly been seen.

2.—Grossmann's animal experiments do not fit laryngoscopically or clinically the conditions found in men, with which he wishes to identify them.

3.—The pathologico-anatomical facts which have been established by several independent writers can not be brought into agreement with Grossmann's theory.

The above work was carried out in the Thierärzteichen Hochschule of Berlin. We express our most grateful thanks to Prof. H. Munk who gave us such excellent assistance in our experiments.

(To be continued.)

ON THE CAUSE OF STUTTERING.*

HOLIGER MYGIND.

COPENHAGEN.

(Abstracted and Translated by GEORGE MORGENTHAU, Chicago.)

Since Denmark introduced public courses for the treatment of stuttering, in October, 1895, I have had the opportunity, as medical member of the supervising committee, carefully to examine quite a large number of stutterers. During these examinations I devoted especial attention to the etiology of stuttering; and as the results seem to me to be not devoid of interest, I have determined to publish them. Altogether, they concern two hundred children and young people, aged from six to twenty-five years. I examined every one personally and in nearly two-thirds of the whole number I secured historical data by enquiries made personally of the nearest relatives. Data of the other third, living outside of Copenhagen, were supplied by colleagues who most conscientiously filled out the question blanks which are sent to every stutterer non-resident in Copenhagen who applies for admission to the government training courses. (A report on the arrangement of these question blanks as well as on the courses in general is to be found in the *Monatsschrift fuer die gesammte Sprachheilkunde*, 1896, page 339-342.)

An attempt was made to divide the causes of stuttering, in the conventional way, into remote and immediate. Among the remote (predisposing) causes will be mentioned; (a) the influence of sex, (b) the influence of age, (c) heredity; furthermore, (d) certain diseases of the nose, naso-pharynx and pharynx, (e) certain constitutional diseases, and lastly, (f) certain other remote causes. Among the immediate, there must be discussed, (g) the so-called moral contagion, (h) the acute infectious diseases, (i) injury, and (k) certain physical influences.

(a) *Sex*.—It is an old experience that many more stut-

*Fraenkel's Archiv., VIII, 294.

terers are males than females. H. Gutzmann (*Die Störung der Sprache*, page 105) found that of quite a large number of stuttering school children, seventy per cent. were boys; of adult stutterers, as many as ninety per cent. were men. Of our 200 stutterers, among whom there were also young people up to the age of twenty-five in addition to the children who were greatly in the majority, 171, that is over eighty-five per cent., were males. It must, however, be presumed that, as a result of various conditions, female applicants are fewer; as they are not, for instance, hampered in housework by this infirmity, etc.

(b) *Age*.—There is no doubt that certain periods dispose to stuttering. They are (1) the second year of life and partially, the two succeeding ones; (2) the age from six to eight years, and (3) the age of puberty.

1 The importance of, especially, the first of these periods is shown in tabulating the beginning of stuttering in these 200 individuals:

In 33 stuttering first began in the 2d year of life.

“ 20 “ “ “ “ 3d “ “

“ 31 “ “ “ “ 4th “ “

“ 29 “ “ “ “ 5th “ “

“ 25 “ “ “ “ 6th “ “

“ 15 “ “ “ “ 7th “ “

“ 19 “ “ “ “ 8th “ “

“ 17 “ “ “ “ after the 8th year of life.

“ 11 nothing could be determined.

It follows that stuttering began in the second to fourth in nearly half of these concerning whom information could be obtained. The importance which the second year of life and the next following ones have in the development of stuttering depends, undoubtedly, on the fact that the child begins to speak at that age. It is even greater than the above review seems to indicate; because, as a matter of fact, considerable time elapses before parents notice that their children stutter. The influence of the beginning of speaking is further demonstrated by the fact that the large majority of the stutterers in whom the disease showed in the third and fourth year began notably late to speak. It was further found that a remarkably large number of stutterers began to speak very late, for

about one-half of those regarding whom information was obtained, began to learn only after completing the second year; and of about one-fourth of these last it was proven that they began to speak only after completing the third year. The disturbance of speech, however, and delayed speech are, probably, co-ordinate phenomena, due to the same remoter causes.

The second period which is of importance in regard to the development of stuttering is the time from the seventh to the eighth year. The influence of second dentition is shown in the above resume, according to which 34 stutterers, *i. e.* 17 per cent. developed stuttering in that period. The influence of the first school years on the development of stuttering has been observed in these Danish courses. That they certainly do influence already existing stuttering is evidenced by the statement that in more than half the disturbance was increased after beginning to attend school. These unfavorable influences, incidental to the first years at school, are, probably, essentially psychical (*i. e.* unfamiliar surroundings, more serious treatment than at home, association with stuttering schoolmates, etc.).

It is not surprising that the age of puberty is of moment in the development of stuttering; it can also be easily explained why the disease should often grow worse during this time, as the nervous system is very susceptible to influences at this period. As children constitute the largest portion of persons examined, our results have no bearing on this question. Finally the influence of age is shown by the fact that stuttering very rarely begins after the close of the period of puberty, while it is often overcome with advancing age.

(c) *Heredity*.—Although heredity is universally considered one of the remoter causes of stuttering it has not received the attention it deserves. Learning from my experience in investigating deaf-mutism, I have devoted attention not only to (1) stuttering in the relatives, but also to (2) mental diseases, (3) idiocy, (4) epilepsy and other spasmodic conditions, (5) chorea, (6) hysteria, nervousness, neurasthenia and similar states, (7) asthma, and (8) deaf-mutism.

1. *Stuttering in relatives of the stutterers*.—Not less than

85 (among them, however, six pairs were brothers and sisters), *i. e.* 42 per cent. had relatives who stutter or did stutter.

The father stutters	-	-	-	-	-	17
" " and brothers (or sisters) stutter	-					8
" " " " and mothers	"	-				1
" " " " " other relatives stutter						4
The mother stutters	-	-	-	-	-	8
" " and brothers (or sisters) stutter						1
" brothers (or sisters) stutter	-	-	-			25
" " " " and other relatives stutter						6
Other relatives stutter	-	-	-	-	-	14

The total number of stuttering relatives was 124; of these 62, *i. e.*, half, were brothers or sisters of the pupils in the course; and 31, *i. e.*, one-fourth were their fathers, As the sum total of the fathers was 194, it appears that 16 per cent. of their fathers either were stutterers or had stuttered. In addition, the pronunciation of some of the fathers was faulty, and among the brothers (and sisters) were some whose speech had developed notably tardily. Of the 192 marriages there were 43 from which either two or more children issued who stuttered or had stuttered; the total number of these children was 106. The figures are large enough to exclude the possibility of chance. In many cases, however, in which the parents of the children stuttered at the time the children developed the defect of speech, or in which brothers or sisters or relatives with whom the children associated stuttered, psychical contagion may be probable. But it must be remarked that eleven of the fathers stuttered only in childhood, and that eight of the relatives did not associate with the children, It must, then, be admitted that heredity or an inherited predisposition, as it might be termed, influenced the development of the disease.

3. Occurrence of mental diseases in relatives of the stutters.

In 15 of the relatives, *i. e.*, in 7 per cent., mental diseases were found in 18 individuals altogether. Of the 194 fathers of the pupils, 5, *i. e.*, 2.6 per cent., were afflicted with mental diseases. This number must be pronounced remarkably large, because mental diseases do not exceed 0.2 per cent. in Denmark, in men of the age of most of the

fathers, from 20 to 40 years. For the sake of comparison, I may state that, in investigating the frequency of mental diseases in the fathers of deaf-mutes, I found the percentage to be 0.8 per cent.; and the importance of these diseases in the etiology of deaf-mutism is universally acknowledged.

4. Occurrence of idiocy in the relatives of the stutterers:

Idiocy does not seem to be frequent. Only 5 of our pupils (among them brothers and sisters) had idiotic relatives. One of these cases was of great interest, since I was enabled to secure the accompanying pedigree, which illustrates most forcibly the relation between stuttering and various nervous conditions.

FAMILY TREE

CHRISTIAN J.

(52 years old; died of pulmonary phthisis.

1	2	3	4	5	6	7	8	9	10	11	12
Julia, 58 yrs. healthy	Emily, 46; nervous.	William, 44; died at sea.	42; nervous; suffers from megrin to married Henry P.	Louise, 4; died of scarlet fever.	Chris- tian, 38; stut- ters.	Still- born.	Marius 32; stut- ters.	Girl; died shortly after birth.	Beata; 29; suf- fers from megrin	Mary; died 2 years old (2).	Still- born.

CAROLINE B.

(76 years old; died of cerebral disease.

1	2	3	4	5	6	7
Amelia 4 mos; died of spasms	Amelia 13; died of epilepsy.	Henry, 11; weak; stut- ters.	Augustus, 9; imbecile; stut- ters.	Elizabeth, 5; died of tuber- culosis	Erk- mann, 5; suffers from epilepsy.	Ida, 3; stut- ters.

5. Occurrence of epilepsy and spasmodic forms in the relatives of the stutterers:

Thirty-two stutterers (among them two pairs of sisters

and brothers), *i. e.*, 16 per cent., were found to have altogether 36 relatives who were or had been afflicted with periodic spasms. In one case the spasm was caused by alcohol; in 5 cases the spasms were probably of hysterical origin. Thirteen cases were undoubtedly epileptic; no information could be obtained concerning the others. Considering that epilepsy and similar spasmodic forms were found nearly twice as often in the relatives of stutterers as in those of deaf-mutes (see Mygind, Deaf-Mutism, page 70), and that they are recognized as important factors in the etiology of deaf-mutism, the percentage must be called large. In addition it was proven that 22 stutterers (among them 20 other than the 23 stutterers mentioned above as having epileptic relatives) lost (altogether 30) brothers or sisters who had succumbed to diseases termed "spasms," fits, convulsions, etc.

The apparent etiological connection between epilepsy and similar spasms and convulsions causing death in children on the other hand, and stuttering on the other, need not surprise since voluntary spasm-like motions are essential to stuttering.

Chorea was traced only (in three cases) in the relatives of 3 pupils. It must be remarked that my attention was not directed to this disease in the beginning, and that, therefore, it was not mentioned specifically among the nervous diseases on the question blank.

7. Occurrence of nervousness, neurasthenia, hysteria, etc., in the relatives of the stutterers.

This group was made to include also cases of "weak nerves," etc., and those in which there was the most certain stigma of nervousness, megrim. Although these various conditions are met with so often, the frequency of their occurrence in the relatives of stutterers is noteworthy: Fifty-eight stutterers (among them no brothers or sisters), *i. e.*, 29 per cent. of the pupils had relatives (altogether 13) thus afflicted; especially was that so with their mothers, of whom 46, *i. e.*, nearly one-fourth per cent., were nervous. Megrim was found in many instances, which included all cases of periodic severe headache accompanied by nausea and vomiting, without inquiry as to the localization of the pain in one side, only, of the head (true hemicrania). Not less than 38 pupils had

(altogether 47) relatives with megrim, among whom 32 mothers (*i. e.* 17 per cent. of all their mothers), three fathers, and the other relative. Finally, 14 stutterers had 12 mothers and 4 mothers' sisters with other forms of headache which appeared neither periodically nor accompanied by vomiting. These nervous disorders must thus be considered important remoter (disposing) causes of stuttering.

8. Occurrence of asthma in the relatives of the stutterers.

"True or nervous" asthma is a spasmodic neurosis confined to the respiratory organs. Fifteen stutterers, *i. e.*, 7 per cent.—among them two pairs of brothers—had (altogether 14,) relatives thus afflicted. Of these, seven were the fathers of pupils. As the disease is not so common, the percentage (3 per cent.) of their fathers points to its etiological influence.

9. Occurrence of deaf-mutism in the relatives of the stutterers.

Ucherman has confirmed—for Norway—the author's statement as to the etiological relation between deaf-mutism and stuttering and other speech defects. Deaf-mutism, however, being a rather uncommon abnormality, it is not surprising that but three stutterers had deaf-mute relatives.

(d) Diseases of the nose, naso-pharynx and pharynx:

Rhinitis chronica hypertrophica in 42 cases, *i. e.* 21 per cent.

"	"	atrophica	2	"	"	"
Polypi-nasi	.	.	.	1	"	"
Adenoid vegetations	.	.	.	78	"	39
Rhino-pharyngitis atrophica	.	.	.	8	"	"
Pharyngitis chronica	:	.	.	32	"	"
Hypertrophica tonsillarum	.	.	.	23	"	"

Chronic hypertrophic rhinitis in a decided form is a little more frequent in stutterers than in other children. Not so with chronic (and granular) pharyngitis.

Hyperplastic tonsils are somewhat more common. Although only marked adenoids were selected, the great percentage shows how often they are to be found in stutterers. I agree with Gutzmann that they dispose to stut-

tering and have, therefore, mentioned them under the heading of remote causes. Removal of the growths does not cure the stuttering, but greatly aids subsequent treatment. Sometimes it improves speech decidedly. One, a girl of 12, did not have to attend the course after the operation; on following directions at home for some weeks she was cured.

(e) Rachitis and scrofulosis.

As only 15 of the pupils had had rickets in early childhood, and only 4 showed signs of scrofulosis, these diseases do not seem of moment as remoter causes. But to be sure, in some cases they may so weaken the patients as to make them more susceptible to the influence which brings on stuttering.

(f) Other remote causes.

Among the stuttering children were many of a quiet temperament; some even phlegmatic and indolent. This does not agree with Gutzmann's opinion, that most stutterers are vivacious, excitable and susceptible to external influences. Perhaps the difference is due to national peculiarities, and the fact that so many of the pupils lived in the country. Alcoholism was discovered in the relatives of 10 of the stutterers; in 7 cases the father was addicted to alcohol. The question of its influence is left open. The percentage of 20 per cent. of pulmonary tuberculosis in relatives (of 41 pupils,) is not great. Partial deafness was found in 14 stutterers, *i. e.*, 7 per cent., always the result of middle ear suppuration. Deformity of the vocal organs was seen in 1 case (hare-lip). Conspicuous lack of intelligence was noticed in 20 stutterers, *i. e.*, 10 per cent. Although mentally weak children were excluded from the courses, one child was an idiot. I am inclined to find a relationship between impaired intelligence and stuttering.

Immediate (occasional) causes seem of much less etiological importance than remoter ones; they were stated in only 58 cases, *i. e.*, 29 per cent.

(g) Psychological infection (contagium morale).

In 27 cases (13 per cent.) stuttering was positively ascribed to associating with stutterers; some others acquired

the defect, probably in this manner. In 3 cases it was said to be due to the influence of the father, in 10 cases to that of school and playmates, and in the other cases to that of brothers or sisters. It is surprising that stuttering is not more often traced to association with stutterers. In half of the pupils whose defect was produced by psychical infection, the nervous diseases named above were found present in relatives. Probably, therefore, the hereditary disposition is an additional etiological factor.

(h) Acute infectious disease.

Measles - - -	6 cases.
Pneumonia - -	3 "
Scarlatina - -	4 "
Whooping cough	2 "
Diphtheria - -	2 "
Mumps - - -	1 "
Cerebro-spinal meningitis	1 case.
19 cases = 9 per cent.	

It is not so much the kind and character of the infectious disease which leads to stuttering, as its intensity, combined with an existing disposition, inherited from the parents (of the 19 cases there were 12 such).

Injury to the head was noted as a cause in 4 cases, *i. e.*, 2 per cent.; while Gutzmann places the percentage at $11\frac{1}{3}$.

(k) Psychical influences are fright (1), timidity during the early school days; (4) change from the German to the Danish language (2 brothers), and removal from the country to the city (1).

We now deal with various other conditions which have some bearing on the etiology of stuttering, and point with much positiveness to a relation between this infirmity and certain hereditary nervous states. Of 162 stutterers examined in this regard, 18—*i. e.*, 11 per cent.—were left-handed "mirror-writers." Gutzmann, who found but 3 per cent., lays great stress on this phenomenon, pronouncing it of unfavorable prognostic influence, a sign of psychical inferiority. I am not as yet in position to judge of its value as a prognostic factor, but must say that it was not possible to discover any impairment of intelli-

gence in some of these stutterers. Five out of 200 stutterers were affected with nocturnal enuresis (2 per cent).

As the figure is not small, and the trouble a decided neurosis, it is worthy of note. It is a singular fact that 1194 children resulted from 188 of the 194 alliances from which our stutterers sprung—*i. e.*, an average of 6.4 from each; of 4 marriages no report was made, and 2 alliances were illegitimate. The *marriages* were, therefore, very *prolific*. They are about equal to those in which deaf mutes were born. Ucherman denies—surely correctly so—any causal relation between the number of the offspring and of deaf mutes; he considers the relations co-ordinate and likely to appear in all hereditary disases, as existing hereditary conditions are apt to appear in large families. To sum up, *stuttering must be considered a decided neurosis, related in its etiology to the so-called neuropathies of degeneration*; in which must be included epilepsy, hysteria, neurasthenia, chorea and others, as well as certain forms of mental diseases. This relation is evidenced especially by the fact that *these diseases occur as frequently in the relatives of the stutterers*; that stutterers possess some of the stigmata of these neuropathies: that *stuttering, similar to most of these neuropathies, is associated with one sex and a certain period of age*; that *the importance of the immediate causes is far less than that of the remoter (predisposing) causes*; and that, finally, *stuttering is also characterized by marked functional disturbances of the nervous system, while the pathologic-anatomic changes are unknown*. While these conclusions are not all new, as several, especially French, neurologists mention stuttering (as well as other defects of speech,) among the stigmata of degenerative neuropathies, I do not know of any material which attempts to advance so many facts to their correctness. It must, however, be emphasized on the other hand that *it is unjustifiable to call every instances of stuttering an expression of a neuropathic family disposition or degeneration*. I have seen many stutterers who belong to families in which no hereditary nervous affections could be traced; besides it is impossible, in many stutterers, to find any one of these stigmata.

As other signs which might be considered stigmata of degeneration I may add: Spasm of doubtful nature (1 case), hemicrania (3), conspicuously large head (3), conspicuously little head (2), a symmetrical skull (1), congenital blindness (2).

The majority of our pupils looked perfectly well,

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

Foreign Body in the Ear and Nose.

534. BARRET. (*Journ. Amer. Med. Assn.*, Aug. 13, 1898.) A description of the routine method of removing foreign bodies from the nose and ear. *Scheppepegrell.*

Statistical Report of the Ear Patients Treated During the Years 1893-1896 Inclusive.

535. BEZOLD, Munich. (*Archives of Otology*, Vol. XXVII, No. 4.) There were treated 5327 ear patients representing 6056 ear diseases.

As to the sexes 56.2 per cent. were male, and 43.8 per cent female.

The various parts of the ear affected were as follows: External ear with tympanic membrane, 22.8 per cent.; middle ear 63.2 per cent.; inner ear 14 per cent.; sclerosis in 66.6 per cent. and otalgia in 64 per cent. of cases affect the female sex. Characteristic peculiarities of which the author has before remarked.

Whereas a number of diseases of the inner ear are either congenital or acquired in childhood through infectious diseases, at least in the vast majority of cases the "subjective noises with normal hearing" (2.3 per cent. children, 97.7 per cent. adults), as well as the "acquired nervous hardness of hearing" (2.6 per cent. children, 97.4 per cent. adult), are conditions found almost exclusively in adults.

The cases of "hardness of hearing, deaf-mutism after meningitis" were in 95 per cent. of the patients bilateral, whereas when following "mumps" 77.8 per cent. were unilateral.

In the cases of "nervous hardness of hearing" 69.4 per cent. occurred in males.

Deafness for speech may be brought about not merely

by changes which are confined exclusively to the nervous apparatus, but also by the final stages of the processes which first cause ankylosis of the base of the stapes.

I. Among 332 cases of acute suppuration of the middle ear in private practice:

	Per cent.
There were healed with closure of the Mt. perforation.....	73.2
There were improved, the secretion ceased but the perforation persisted	2.4
The secretion persisted in spite of prolonged treatment.....	1.2

II. Among 870 cases of chronic suppuration of the middle ear:

	Per cent.
There were healed with closure of the Mt. perforation	2.5
There were improved, the secretion ceased but the perforation persisted	52.3
The secretion persisted in spite of prolonged treatment.....	14.2

Of these acute and chronic cases in private practice there were 5 deaths making a mortality in acute cases of 0.9 per cent. and in chronic suppuration 0.2 per cent.

Campbell.

Analysis of Thesis. Study of Noises in the Ears.

536. BOUCHARD. (*Rev. hebdom. de Laryngol. d' Otol. et de Rhinol*, No. 40 Oct. 1, 1898.) Historically interesting is the fact that in 1720 Guyot made injections into the eustachian tube. Dienert recognized perforations of the drum membrane in 1748. With the exception of a few extremely unsafe speculations there is nothing that cannot be found in any modern text book.

Holinger.

Care of Ears in Early Life.

537. BRYANT, D. C. (*Western Med. Journal* July, 1898.) The care of the ears in early life includes proper attention to the nasal passages and the pharynx. In all the diseases of early life prone to affect the mucous tract of the nose, throat and middle ear, the latter should be carefully watched and receive proper attention as soon as any symptoms of implication of that organ becomes manifest.

Scheppegrell.

Sarcoma of the Internal Auditory Canal.

538. DRUAULT. (*Annales des malad. de l' Oreille du Lar., du Nez. et du Phar.*, No. 8, August, 1898.) A very care-

fully observed case of a rare disease in which the main link, the post-mortem, is not missing. A girl of 17 enters the hospital September 25, 1897. Nothing special can be found in her history. She was nursed up to her 9th year. When 10½ years old she had nervous spells with one sided facial paralysis, deafness and severe headache. The paralysis improved in the next six years during which time she had electric treatments. November, 1896, she suffered from headaches with vomiting recurring every 15 to 20 days. Since June, 1897, she notices double vision. The present condition is such that a brain tumor is immediately thought of. The headaches are worse from midnight till morning. Almost daily she had vomiting and constipation. She suffers from right sided paralysis of the face, the arm and the leg, and from aphasia. The patellar reflex is normal, but the sensibility is diminished. The senses of taste and smell are normal. In both eyes choked disc is found. The right ear is almost totally deaf, the aspect of the tympanic membrane however is normal. Up to October 3rd antisyphilitic treatment was administered without success. Then a trephine opening was made a little back of Rolando's fissure. The meninges were normal; the lateral ventricles were punctured and some clear fluid was aspirated. After this no improvement was noticable. November 12th over the old trephine scar a vesicle of 1½ cm. in height was noticed. November 27th patient died. The post-mortem proved a communication of the vesicle through the softened brain tissue with the lateral ventricles. The hemispheres were normal. The right cerebellum was pressed by a sarcoma of the size of a goose egg. It is not adherent to the cerebellum, but to the bone and enters into the internal auditory canal with a prolongation of 1 cm. in diameter. In the internal meatus the tumor is in connection with the pia of the auditory nerve, but does not enter into the labyrinth nor the Fallopian duct. The middle ear and mastoid process are normal. The microscopical examination shows an angiolytic sarcoma. The case is important for its slow development, the diagnosis of its seat on account of the question of a radical operation.

Holinger.

Mechanical Vibrations Applied to the Dorsal Spine as Treatment for Sclerosis of the Ear.

539. DUNDAS-GRANT, London. (*Rev. hebdom. de Laryngol. d' Otol., et de Rhinol.*, No. 35, Aug. 27, 1898.) Cases of deafness without any relief from catheterization of the Eustachian tube nor any other treatment are very frequent. The cause is some form of an arthritis of the stapedio-vestibular joint. Bezold finds ankylosis of the stapes. Politzer considers the primary seat to be the labyrinth. The author has discovered rheumatism, gout or syphilis as causes. To his wife the author has to thank for a new suggestion. She noticed that in paracusis Willisii it is more the shaking than the noise which improved the hearing, because the improvement was just as marked on the bicycle as in the cars. On this the author bases a treatment with vibrations, which he says gave good results. Two histories are added to prove these results.

Holinger.

Acute Inflammation of the Middle Ear.

540 ELLETT, E. C. (*Columbus Med. Journ.*, August 16, 1898.) A review of the etiology and pathology of inflammation of the middle ear. In the early stage the Politzer bag is useful, but the pharynx should first be sterilized to avoid the conveyance of suppurative material into the Eustachian tube. After spontaneous or artificial rupture of the drum, the Politzer air-bag should be used.

Scheppepegrell.

Hygiene of the Ear.

541. EWING, F. C. (*Dietetic and Hygienic Gazette*, May, 1898.) Two interesting lectures on the subject of the title, including a reference to the anatomy and physiology of the organs of hearing.

Scheppepegrell.

Sound Produced in the Perforated Drumhead.

542. FARNS, RAFAEL (*El Siglo Medico*, Madrid, Oct. 2, 1893, No. 2336), reports a phenomenon which he thinks has hitherto escaped record, rather from oversight on the observer's part, than from lack of frequency in occurrence. He refers to the sound (audible to the physician) produced in a perforated drumhead accompanying the breathing. In one case he heard this sound in one ear when the patient was awake and upright, while in the

other it could be perceived only when he was lying down and breathing quietly. The perforations were due to preceding pharyngeal inflammations, and the sounds disappeared as the disease was cured and the perforations closed.

Hale.

On the Functional Examination of the Ear, with an Exhibition of Bezold's Continuous Tone Series.

543. KNAPP, New York. (*Archives of Otolology*, Vol, XXVII, No. 4.) A complete functional examination of the ear has to determine the three qualities of sound: intensity, pitch and clang-tint.

Intensity of sound determines the sharpness of hearing. The watch and acoumeters with ill-defined sounds, not so easily analyzable as those of tones, have lost credit in favor of the human voice; yet, they are serviceable on account of their convenience, and are likely to remain in use.

The human voice is by common consent, our best means of testing hearing.

Regarding normal hearing distance, of whispering or ordinary voice, this is largely a personal matter. It depends on the strength of the aurist's voice and the conditions of his surroundings.

One must verify his standard, from time to time, because just as a watch, in the course of time, has a weaker tick by smoothening of its gear, so a man's voice is apt to get weaker with advancing years.

In the use of the test words the author is accustomed to take them from the most diversified objects so as to give patients no clew by guessing.

For the detection of absolute one-sided deafness, the author uses three tests:

1. Dennert's test. The patient closes the better ear, by pressing the moistened end of the index finger snugly into the canal. The other ear is tested with an acoumeter and the voice. The patient is then told to stop also the bad ear and keep both closed. If the acoumeter and voice are not heard at about the same distance one can infer that the bad ear does not add anything to the hearing power of the patient.

2. Weber's test.

3. Knapp's test. If we move a tuning fork of medium

pitch, say C', up and down before the good ear, the patient hears it sound with puff-like enforcements when it passes before the meatus of the good ear; moving it then up and down before the other, deaf ear, he will hear it evenly or almost evenly; an intelligent person may hear also slight puffs when the fork passes before the meatus of the deaf ear. The reason of this is that the sound waves, reaching the good ear through the head, strike it more directly and with greater force when passing through the canal of the deaf ear then through the skull. This can be proven if we let the patient stop the meatus of the bad ear. He then hears the fork no longer in puffs, but evenly.

The range of audition of the human ear extends from subcontra C (C'') up to a⁸ comprising almost 12 octaves.

Bezold has succeeded in devising and having made in most accurate manner a *continuous tone series* by which two very remarkable facts have been brought to light.

1. The preservation of single and connected tones and series or groups of tones in the hearing organs of deaf mutes (tone-islets). He found out that the preservation of an acoustic range from b¹-g² was the best field for the cultivation of speech in deaf-mutes.

2. In labyrinthless ears, the hearing power left is reflected (a faint photograph) from the other ear.

When impairment of hearing is present the tuning-fork tests are indispensable. Rinne's test with a fork of middle pitch from c to a' is sufficient in simple cases; in complicated cases be they catarrhal, adhesive or suppurative Rinne's test is to be supplemented by Schwabach's measuring the duration of sound) and Weber's tests.

In advanced cases one should examine the range of audition as to pitch, especially both ends of the scale with three forks and a lower C-A, a middle c'-a', and a high one c⁴.

For one-sided deafness Dennert's, Weber's and Knapp's tests are sufficient, but in the gravest cases with tone defects, Bezold's continuous tone series alone will make a thorough examination possible.

Campbell.

The Lesions of the Ears are Often Determining Causes of Agoraphobia.

544. LANNOIS AND TONNIER. (*Annales des malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 10, October, 1898.) Agoraphobia is a nervous condition of anxious impressions, or even fright, which overcomes a person in presence of large spaces. The author gives 10 very interesting observations, and draws the following conclusions:

1. Agoraphobia is not a primary disease, but appears only on a neurotic basis. This basis may be nervous excitement or nervous degeneration.

2. The cause which produces agoraphobia rather than other possible phobias in a great number of cases, is some disease of the ear which is connected with dizziness and noises in the ear.

3. If the cause of agoraphobia was a great fright, which was not connected with vertigo (sight of an epileptic fit, a cold, colic, or an hysterical attack), the lesions of the ears are very often the cause of the persistence of agoraphobia.

Holinger.

Prompt Attention to Earaches in Infancy and Early Childhood

545. LAUTENBACH, L. J. (*Jour. Am. Med. Ass'n*, Oct. 29, 1898.) Earache may be a symptom of some important condition, and treating it by palliatives, as is often done, is unscientific and dangerous. The lack of appreciation of the possibility of danger in this condition is illustrated by the fact that Dr. Lautenbach was invited to see a case with a physician who stated that the case was not urgent, and that the following day was sufficiently early. Before the time appointed had arrived the child had died, probably from cerebral involvement. If these cases were promptly and properly attended to, it would not only decrease the danger of complications, but also diminish the number of deaths in our midst.

Scheppegrell.

The Use of the Electric Drill in Operations of the Mastoid and Temporal Bone.

546. LOMBARD. (*Annales des Malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 9, September, 1898.) The author

finds these advantages of the electric drill over the gouge and mallet:

1. There is much more precision.
2. There is no danger of hurting the soft organs, because they move out of the way of the drill as soon as it touches them.
3. The shock is avoided.
4. The wound is smooth.
5. The operation is done quicker.
6. Even if the bone is eburnated, the elastic drill does the work easier. These facts are illustrated by the history of one operation.

Holinger.

The Cleaning Out of the Petro-mastoid. New Surgical Treatment of Chronic Dry Inflammation of the Middle Ear.

547. ARISTIDE MALAERBE. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 32, August 6, 1898.) Some physiological considerations of the tympano-mastoid apparatus, and indications for operation (read before the French Soc. of Laryngology, May, '98.)

The author brings out eight points:

1. The cleaning out of the petro-mastoid ought to be tried in old persons.
2. An early operation will have a great advantage, because the lesions are still limited.
3. The perception of the tuning-fork by air conduction does not give any reliable results. But we must not operate in persons who cannot hear a tuning-fork or the acumen by bone conduction.
4. The lowering of perception of the higher tones by air conduction is usually a bad sign.
5. One should operate upon one ear only at a time.
6. We should always operate on the worse ear, because the improvement of the worse generally brings about an equal effect upon the better ear.
7. The improvement is usually in the higher parts of the perceptible tones; the lower sounds are not influenced.
8. Subjective noises disappear, or diminish progressively after intervention.

Holinger.

**About Closing Perforations of the Tympanic Membrane
with Trichloroacetic Acid.**

548. MIOT. (*Rev. Hebdom. de Laryngol, d'Otol. et de Roinol.*, No. 34, August 20, '98.) Read before the French Laryngol. Soc., May, '98.

The author ascribes this treatment to Okounew.

Of 51 cauterizations with trichloroacetic acid 9 were successful. This result was due to the careful selection of cases. All very large perforations, and those of Shrapnell's membrane, were excluded. The result as to hearing was an equally good one, only twice was an increase of the deafness noticed through formation of synechia. The trichloroacetic acid is, therefore, highly recommended. The galvano-cautery or the radial incisions are reserved for the excision of perforations with much indurated borders.

Holinger.

Influenza in Its Relations to the Middle Ear.

549. NATHAN, JOSEPH. (*Wurzburg Inaugural Thesis*, 1897.) Only the first two forms of influenza (there being three recognized types, the catarrhal, the nervous and gastro-enteritic,) seem to involve the ear. Influenza otitis appears either (1) in the beginning of the attack, or, at least, before its subsidence—the *early form*: or (2) after the influenza seems to have run its course, sometimes 1 to 2 weeks later—the *late form*. Most authors agree that only the early forms are produced by the influenza bacillus itself; the late forms being ascribed to a secondary infection by contact from the naso-pharynx, analogous to the secondary affections in other infectious diseases, as measles, scarlatina, pneumonia. The *early forms*, which represent the pure influenza type (Haug), being a localization of the influenza process in the ear, are characterized by a *hemorrhagic* inflammation. These hemorrhages, to be sure, do not occur in all cases, rather only in a proportionately small number; but hemorrhagic otitis media is met with undoubtedly greater frequency in influenza than in other infectious diseases and in otitis media genuina.

These early forms attack mostly persons in the middle and late periods of life; children enjoy a certain immunity. Before the other influenza symptoms have subsided, often on the first or second day, the patient complains of

severe boring pains in the depths of the ear. This, in some instances, is preceded by more or less severe epis-taxis. The pains increase rapidly, and, within a few hours, reach an intensity which is not observed in middle ear inflammation from other causes; they radiate to the neighboring parts of the face and neck, and even to the upper extremity of the same side, and to the chest. The temperature, which was somewhat elevated before, rises, within a few hours, to 41° C. and more; occasionally accompanied by severe chills.

Besides, there are often tormenting subjective noises, and extreme sensitiveness to external noises. Hearing rapidly diminishes, often to complete deafness of the affected ear. The objective appearance in hemorrhagic inflammation is as follows: The drum membrane shows, on its whole surface, a deep blue-red to blue-black discoloration; it bulges, its normal contours have completely disappeared. In other cases the whole surface appears greatly congested, with deep blue-red to blue-black hemorrhagic blebs of the size of a pin-head to that of a pea; usually one larger and several smaller blebs.

More rarely there is a hemorrhagic myringitis without marked implication of the middle ear. The blebs may involve the external canal, also. After a few hours, usually, a perforation occurs with secretion tinged more or less with blood. In rare cases the hemorrhage may be severe, lasting even several hours. There is no location of the perforation which might be called characteristic. The cases in which the secretion is purulent from the beginning are quite severe, because the mastoid process often becomes involved.

Koerner reported three cases of peculiar hemorrhagic otitis media in which, several days after perforation had formed or paracentesis was made, several rings of brownish-red color appeared in place of the hemorrhages. The drum membrane reminded one of a panther's skin. They disappeared after a few days. Koerner distinguishes four forms of pure influenza otitis:

1. Cases in which there are hemorrhagic exudates, and hemorrhagic blebs on the drum membrane, from the beginning.

2. Cases in which the drum membrane pouts, and the

granulations of the thickened mucous membrane crowd through the perforation.

3. *Primary* central disease of the mastoid process, with secondary inflammation of the tympanum.

The ring-shaped secondary hemorrhages of the drum membrane.

In remarkably many cases of influenza otitis, the disease seems to have a preference for, or is even restricted to, the attic. Houg differentiates between exudates in the anterior portion, corresponding to Shrapnell's membrane, from those in the posterior portion; the latter being much more serious. Early paracentesis is urged.

Morgenthau.

A Case of Deafness with Disturbances of Equilibrium and Pulsating Exophthalmus.

550. PHOTIADES AND GABRIELIDES, Constantinople. (*Annales des maladies de l'Oricelle du Lar. du Nez. et du Phar.*, August, 1898.) A man of 26 fell from a tree 3 to 4 meters high. He suffered a great loss of blood from his nose, mouth and ears. Immediately afterward all the above named symptoms developed. He was unconscious for three days, and later had to stay in bed for three months, after which a suppurative, or rather a flowing of yellow watery, fluid from both ears developed, which persisted for six or seven months. There is complete facial paralysis. A very careful examination of vision and hearing, as well as electric reactions, gives a number of very interesting results. The exophthalmus improved, but the dizziness persisted.

Holinger.

Remarks as to the Right Moment for Trephining in Mastoiditis

551. POLO. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 39, Sept. 24, '98.) The author sums up the contents of his paper:

1. The mastoid operation is an excellent one.
2. It is not always devoid of danger.

3. So long as there are no brain symptoms, or if the swelling over the mastoid is not well limited, we should wait; exception from this rule has to be made in well defined cholesteatoma.

Holinger.

Paralysis of the Facial Nerve in the Course of an Acute Otitis Media—Recovery.

552. PONTAIFERE. (*Annales des maladies de l'Oreille du Lar. du Nez. et du Phar.*, No. 8, August, 1898.) A barber of 22 complained of loss of hearing, especially in the left ear. He had an old suppuration in the right ear, and for some time running of the left ear also. In the course of the treatment he got an acute attack of inflammation of the left ear, with nearly complete facial paralysis, which disappeared after paracentesis almost as suddenly as it appeared. The patient had a chancre 4 years previous and has had ozena.

The author mentions other observations of facial paralysis in acute otitis media. The title of this paper is misleading, because the case is not one with acute otitis media but with chronic otitis, and furthermore, in a syphilitic individual. It cannot be called a case of facial paralysis in "acute otitis media."

Holinger.

Sinus Disease of Otitic and Rhinitic Origin and General Infection.

553. PREYSING, ROSTOCK. (*Archives of Otology*, Vol. XXVII, No. 4.) The following 10 cases were observed at the ear and throat clinic:

Case 1.—Suppurative ethmoiditis after scarlet fever. Orbital abscess, phlebitis of cavernous sinus and septico-pyemia, evacuation of the orbital abscess and the ethmoid cells. Death.

A child, aged 5, was taken ill with scarlet fever; a purulent discharge from the nose set in and the temperature rose to 40° C. The left eye became sensitive to light, and the lids edematous. Both mastoids became tender, and on the following day both ears discharged.

The child appeared emaciated, and the lids of the left eye were edematous. The edema increased, and the left eye protruded. The temperature gradually returned to normal, but after an interval of some days it suddenly shot up, with diarrhea, abdominal distension, rapid pulse and respiration. The left eyeball was forced down and out, but no swelling appeared at the orbital margin, except the edema.

As there was no evidence of pus retention in the ears,

the cause of pyemia had to be looked for in ethmoidal suppuration and orbital abscess. A subperiosteal orbital abscess was evacuated, the osplanum was carious and the diseased ethmoidal cells curetted. The frontal sinus was opened and found empty. The symptoms were relieved, but death ensued.

Case 2.—Pyemic fever in acute otitis media. Recovery after evacuation of the tympanic abscess.

A child, aged 15 months, was taken ill with double-sided acute otitis media. After ten days the right ear ceased to discharge, and the temperature rose to over 40° C., with anorexia, somnolence and irritability. The right Mt. was red and prominent, and a paracentesis allowed escape of serous fluid and blood. The following day the auditory canal was filled with pus. Rectal temperature showed a fall of 5° C., on the morning of the following two days, with an evening rise to almost the same height.

The discharge from both ears grew gradually less, and the child made a rapid recovery.

Case 3.—Cholesteatoma, sinus thrombosis. Operation. Recovery.

A man, aged 29, suffering from right-sided otorrhea, had the discharge suddenly cease and severe pain in the head set in, with chills and fever. The right auditory canal contained a large polypus. The right mastoid was tender along its posterior margin. Temperature 38.2 C.

The mastoid was opened and found sclerosed. The sinus was surrounded with pus, and granulations lined the bony wall of the sulcus transversus down to the jugular foramen.

The antrum was exposed by Stacke's method, and contained a few granulations. A fistulous track led to the diseased sinus. The sinus was incised and a dark, soft clot evacuated. The wound was packed, and recovery was uneventful.

Case 4.—Cholesteatoma, sinus phlebitis; pyemia; operation; meningitis serosa ventricularis acuta; death.

A man, aged 21, had a discharge from the left ear since youth. He felt severe pain in the left ear, which radiated to the back of the neck. Temperature, 40.2° C. The left mastoid was tender on pressure. The left auditory canal led to a cavity filled with cholesteatomatous masses. The right canal contained pus; the Mt. was perforated.

The left mastoid was opened, it was eburnated but soft, and hyperemic at the tip. Antrum, tympanum and canal formed a large cavity filled with cholesteatoma extending toward the tip and to the sinus. On return to consciousness, facial paralysis was observed. Paroxysmal pains caused the patient to cry out. The pulse was slow, sluggish and irregular. Horizontal nystagmus on looking to the right. Deglutition difficult. Cheyne-Stokes respiration and coma developed. After death the left lateral ventricle was found greatly distended, with a clear yellowish fluid (meningitis serosa).

Case 5.—Acute suppuration in both temporal bones, presumably after measles. Severe pyemia, with multiple joint-metastases. Opening of both mastoid abscesses and of three joints. Death after 6 hours. No autopsy.

Reported by Koerner. See abstract July, 1897.

Case 6.—Thrombophlebitis of the lateral sinus. Purulent lepto-meningitis. Metastasis in the lungs. Death.

The patient entered the hospital in a moribund condition. On autopsy the veins of the cortex were congested. The upper wall of the left lateral sinus was composed of a yellowish, cheesy mass. The longitudinal and right lateral sinuses contained coagulated blood. The upper and lower surfaces of the left cerebellar hemisphere were covered with a purulent membrane and puriform masses have perforated the pia.

In the posterior fossa, near the sigmoid sulcus, was found carious bone. Clear serum distended the ventricles. The pericardium contained clear fluid. The left lung was adherent to the costal pleura, and in its lower lobe were two abscess cavities about $\frac{3}{4}$ cm. in diameter. Many similar abscesses were scattered over the surface of the three right lobes.

Case 7.—Thrombophlebitis of the right lateral sinus. Sepsis. Operation. Death.

A woman, aged 20, who had cough and fever for several weeks, complained of swelling and tenderness of the left mastoid. Temperature 40.2° C.; pulse 144–152. The right auditory canal is filled with pus and a large granuloma. The tip and posterior margin of the right mastoid are tender. The mastoid was opened and found soft near the tip, the antrum was filled with granulations. Posteriorly

at a depth of 1 cm. a peri-sinus abscess was found; this region was curetted. A track was found leading from the antrum to the peri-sinus abscess. The neck below is diffusely infiltrated and hard.

On autopsy the dura is unchanged, except near the mastoid antrum. The neighboring bone is discolored and soft. Thrombus extends in the sinus half way back to the torcular. The thrombus is adherent to the wall, and near the center grayish green and soft.

Case 8.—Thrombophlebitis of the lateral sinus and pulsating abscess of the sinus from cholesteatoma in a woman 74 years of age, after otorrhea of 60 years duration. Operation. Recovery.

A woman, aged 74, who had a discharge from her left ear since her 14th year, was taken ill with influenza and pneumonia. The left ear began to pain and the discharge ceased. There was high fever, rigors and delirium. The mastoid became tender, and the upper wall of the auditory canal bulged. The radical operation was performed. The antrum was found full of cholesteatomatous masses, and the bend of the sinus was covered with granulations and pulsated. The sinus being accidentally torn, pus escaped. The sinus and bone cavity were separately tamponed. A secondary plastic operation (Koerner's,) was made three weeks later. Recovery was uneventful.

Case 9.—Healed otitic phlebitis of the left cavernous sinus.

A child, aged 13, had suffered from otorrhea of both ears for seven years. The discharge suddenly stopped, with high fever, rigor and headache. The left auditory canal contains pus; the Mt. is swollen above, and there is a perforation, behind which several white shreds appear. The radical operation was performed on the left side. The bone was sclerosed; the granulations in the tympanum were curetted, and the hammer and anvil removed.

Next day the patient complained of diplopia; the left abducent nerve was paralyzed; diarrhea and typhoid-like symptoms appeared; vomiting, jaundice, double choked disc. The left eye was distinctly prominent. These symptoms gradually improved; the temperature, which had reached 40.6° C., declined, and the hearing—which for

some days was lost—slowly returned, but was more acute in the right ear.

Case 10.—A boy, aged 8, twenty-two days before, was kicked by a horse on the left ear. He vomited a number of times, but there were no other symptoms.

On the second day he was peevish, restless, and complained of headache. During the night of the third day he lost his hearing. Evening—temperature, 38° C. to 40° C. No ocular symptoms, no aphasia, no paralysis; complained of pain in the left ear and occiput. On palpation an oval depression, with sharp edges, occupies the temporal squama and the parietal bone.

Total deafness for speech, bells, high and low tuning forks. Mt. and tympana normal; no bone conduction. Patient can read writing and answer written questions. A probable diagnosis given of abscess of the dura or of the brain. In operation, on dividing the integument over the posterior end of the fracture, half a drachm of purulent fluid escaped. The bone was reflected and the dura found normal and pulsated. At the lower part, near the depressed fracture, an area of yellowish-red granulation tissue was visible between dura and bone. This was removed, and the wound closed.

In the following days repeated vomiting and headache. The dura was opened and the brain punctured without result. Edema of the upper eyelid, and the dural wound protruded. A superficial abscess of the temporal lobe found, which contained streptococci. Lumbar puncture performed and cloudy fluid drawn off containing pus cells, with diplococci and cocci in chains of four.

Patient gradually failed; nystagmus, spasms of the right facial nerve, convulsions and death. On autopsy, in the left temporal lobe was found a cavity filled with 50 ccm. of cloudy yellow fluid. The lateral ventricles were distended, with 100 ccm. greenish flocculent fluid. The endyma thickened. In the left lateral ventricle, near optic thalamus, the brain substance was broken down.

Campbell.

Earache; Causes, Treatment, Relation of the Exanthemata Thereto.

554. RICHARD. G. L. (*Boston Med. and Surg. Jour.*, July 28, 1898.) A review of the causes of earache and

its treatment. The most obstinate cases of purulent diseases of the ear are connected with or are sequelæ of scarlet fever. This is also the case with measles and diphtheria, although to a less degree.

Scheppegrell.

Surgery of the Pneumatic Sinuses of the Skull in Relation to Ophthalmic and Aural Surgery.

555. SATTLER, ROBT. (*Medical News*, Sept. 10, 1898.) In many cases of periorbitis and periostitis of the margin of the orbit, an exploration of the frontal or maxillary sinuses will disclose the origin and the cause. Uncontrollable neuralgia of the frontal and infraorbital region, when other causes are eliminated, may be due to disease of the pneumatic cavities of the frontal and maxillary sinuses. The same necessity of thoroughness in the diagnosis, and prompt and painstaking attention in surgical methods, which are now given to the pneumatic cases of the temporal bone, should be applied in lesions of the ethmoidal, sphenoidal and maxillary sinuses.

Scheppegrell.

A Combined Eustachian Inflator and Ear and Nose Douche.

556. WALTER, W. (*Jour. Amer. Med. Ass'n*, Aug. 13, 1898.) An ingenious appliance, which the author claims to be useful as an Eustachian inflator and ear and nose douche.

Scheppegrell.

Abscesses in the Neck Consequent on Diseases of the Ear.

557. FERRERI, GHERARDO. (*Laryngoscope*, August, 1898.) The most common paths taken by pus coming from the tympanic cavity and the mastoid antrum are through the posterior canal wall, through the external wall of the mastoid, through the superior wall of the mastoid, which is continuous with the tegmen tympani, and through the posterior wall of the mastoid, which lodges the sigmoid groove, in which is found the transverse sinus. The opening is frequently through the hardest part of the bone, and the abscesses must be considered as being propagated through the agency of pyogenic micro-organisms, which travel through the connective tissue, lymphatic and venous systems, possibly through the nervous structures,

and even through the bony wall of the mastoid. The rich network of intra-osseous veinlets in the temporal bone, favors the development of osteomyelitis, and in chronic infections of the attic and mastoid antrum this network may be the seat of thrombi. By obstructing the normal vascular current, these thrombi favor the transportation of pyogenic micro-organisms to the extra-aural regions.

In explaining the formation of neck abscesses consequent on and concomitant with otitic process, consideration must be given to the venous network at the base of the cranium. In infancy abscesses do not occur with more frequency because of the natural drainage existing between the limiting portion of the temporo-auricular regions, while in adults, on account of the conformation of the bony structures, the free drainage of pus, coming from the ear cannot be the same.

Abscesses of the neck are variously divided by different writers. and the Roman classification is the following: (1) Superficial, when they infiltrate the subcutaneous connective tissue; (2) interstitial, when they infiltrate the inter-muscular spaces; (3) very deep, or *para-scheletrici*.

Loeb.

A Case of Epithelioma of the Middle Ear.

558. WILKIN, G. C. (*Journal of Laryngology, Rhinology and Otology*, July, 1898.) Although only 20 such cases are to be found recorded in literature, the writer has met with three. In the case which he reports the growth first appeared as a polypi, which was removed. The recurrence was very rapid, appearing as a purple, slightly mammilated friable mass filling the concha, which microscopical examination proved to be epithelioma. The patient died in six months.

Loeb.

Exostosis of the External Auditory Canal.

559. GOLDSTEIN, M. A. (*Journal of Laryngology, Rhinology and Otology*, July, 1898.) Henry C., aet 23, suffered from acute earache of 2 or 3 weeks' duration three years ago, since which time several other attacks have occurred, succeeded by itching sensation and impaired hearing. Examination of the left ears showed a rounded mass offering considerable resistance, pale red in color, painful

upon pressure, and within a half inch of the external opening. After several unsuccessful attempts to remove the growth with a Wilde-Blake snare the mass was extirpated by placing a long shallow concave curette over the convex surface of the tumor, and by loosening it with a gentle, firm leverage, by means of which it was carried out of the canal. *Loeb.*

A Case of Hysterical Nerve Deafness, with Spontaneous Recovery.

560. GRANT, DUNDAS. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The deafness, which was of three years' duration, had come on gradually, but had become much worse after the extraction of eight teeth some three months before seeing the writer. A diagnosis was made of nerve deafness of indeterminate origin, but probably "auto-suggestive." Eighteen months later the hearing returned, after an indisposition which required her to remain in bed for two weeks. The tuning-fork test made at the first visit showed complete loss of hearing for C_2 and C_1 , while for the other forks, extending from C up to C^5 , the hearing power varied from 3 to 15 per cent. The tuning-fork test for middle tones, C^1 answered to the type of nerve deafness, and they were sufficient to exclude middle ear disease. The tests for air conduction throughout the whole range of audition indicated that the maximum of loss was for the deep tones. In typical disease of the labyrinth the opposite would be the case.

Loeb.

Aural Exostoses.

561. LAKE, R. (*Journal of Laryngology, Rhinology and Otology*, August, 1898.) The writer reports two cases, in one of which the chisel was employed and in the other a Stacke operation with the writer's metal flap gave an excellent result.

Loeb.

Aural Reflexes.

562. YEARSLEY, M. (*Journal of Laryngology, Rhinology and Otology*, May, 1898.) After considering the nerve distribution and relation of the ear, including the vagus, glosso-pharyngeal, facial sympathetic and the fifth, it is not to be wondered that irritation of the terminal fila-

ments should call forth reflexes of corresponding amplitude. They include ear cough, cardiac taste and gastric reflexes, epileptiform convulsions, hiccough and oculomotor reflexes. Illustrative cases are reported of each variety. *Loeb.*

Considerations and Observations on the Surgical Anatomy of Tympanic Antrum.

563. LAKE, R. (*Journal of Laryngology Rhinology and Otology*, May, 1898.) *Lateral Sinus*.—Sections of twenty-eight bones were made by a saw-cut passing in a horizontal direction through the small fossa situated immediately superior to the supra-meatal spine, and careful tracing were made from each. By comparing these it was possible to formulate three groups.

1. That class of skull in which the sinus must unavoidably be opened, or rather exposed during operation on the antrum.

2. That in which it may or may not be seen during the operation.

3. That in which it will not come into view. The writer concludes that about once in six cases operated upon, the sinus will come into view. The average depth of the attic is three-tenths of an inch from the surface, and the nearest point of the sinus to the antrum is on the average of 0.48 of an inch, its smallest distance being 0.2 of an inch and its greatest 0.7 of an inch.

The Middle Fassa.—In two cases out of the twenty-eight this lay at so low a level that it would have been quite impossible to have reached the antrum without entering the fassa or almost doing so.

The Facial Nerve.—There are two principal points where the nerve is exposed to injury in operative procedures around the mastoid—first, in the aqueduct of Fallopius; and secondly, for the first quarter of an inch after it next enters the mastoid.

The Vestibule.—The only part of the labyrinth which is exposed to any real liability, is the external semi-circular canal, the depth of which is only that of the Fallopiian canal from the surface. *Loeb.*

Fallacies in the Physiology and Functions of the Labyrinth.

564. GOLDSTEIN, M. A. (*Laryngoscope*, September, 1898.) The writer combats the present accepted theories concerning the function of the semi-circular canals by reference to a case of extensive exfoliation of the labyrinth. This patient walked into the assembly hall of the medical society with a thoroughly steady gait and a perfect sense of direction, walking with head and body erect, and turning to the right or left as indicated by the members of the Society conducting the examination, and all the while the exfoliated labyrinth containing the cochlea and semi-circular canals taken from his right temporal bone was lying upon the table. It was even possible to demonstrate that there was still some hearing power remaining in the affected ear.

Loeb.

Mastoiditis.

565. SISSON, E. O. (*Laryngoscope*.) Conclusions: Most cases of mastoiditis are the direct result of chronic purulent otitis media, but they are not produced in proportion to the frequency of the latter, and, therefore, there must be some existent condition or conditions exerting an influence in this direction,

The pathological conditions are not necessarily the same in any two cases.

Loeb.

II.—NOSE AND NASO-PHARYNX.**Acute Non-Suppurative Sinusitis from Pneumococci.**

566. BERNARD, RAYMOND. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 30, Aug. 13, '98.) Two interesting cases are accurately reported:

1. A physician returned from a long journey, much exhausted. October 20th he caught cold, on the 28th felt very sick and unable to work. While reading a paper several drops of fluid discharged from the right nostril. The fluid was rusty red, and contained pneumococci. Several other symptoms of sinusitis developed on one side. The discharge and pain continued until November 5th, when all symptoms disappeared as suddenly as they had developed.

2. The second observation is similar. An hospital waiter had an angina, in the course of which the sinusitis set in. It lasted for six days after which quick recovery took place. Here, too, a careful bacteriologic examination was made of the characteristic rusty fluid, and pneumococci were found.

Holinger.

**Cystic Degeneration of Both Middle Turbinated Bodies—
Multiple Mucous Cysts.**

567. BERNOND, M. (*Annales des malad. de l'Oreille du Lar. du Nez. et du Phar.*, No. 10, October, 1898.) A mouth breather of 67 had his nose examined. Both sides, the right more so than the left, were filled with large transparent masses. They were removed and proved to be cysts of various sizes filled with clear watery fluid.

Holinger.

Acne Rosacea and its Treatment.

568. BLOEBAUM, F. (*Deutsche Med. Zeitung, New Orleans Med. and Surg. Journal*, November, 1898.) After correcting intranasal pathologic conditions, such as hypertrophy, septal obstruction, etc., the acne of the nose was treated in the following manner:

Infiltration anesthesia was first established and the patient ordered to drink a couple of glasses of wine in order to develop the efflorescence of the nose more markedly. The fine point of a cherry-red cautery needle was passed over the vessels, occasionally pressing a little deeply. After the operation ice compresses were applied for some hours and rest in the bed ordered. Later, sedative dressings were used. The reaction was extremely slight. Repeated applications were made to the dilated capillary vessels and to the nodule until the whole nose had been treated. A month later, the patient appeared cured and the scar was almost invisible.

Scheppegrell.

A Case of Pseudo-Membranous Rhinitis.

569. CARTAZ. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 36, September, 1898.) Diphtheria bacilli have been found by several observers in the membranes of pseudo-membranous rhinitis. In the case the author reports they were also found, although general infection was absent and no infection of other people occurred.

The case is not a clear one, as there was syphilis present.

Holinger.

The Influence of Diseases of the Stomach Upon Nasal and Postnasal Catarrh.

570. CONKEY, C. D. (*Medical Times*, August, 1898.) Clinical cases of nasal and postnasal catarrh are apt to give a history of derangement of the stomach and are invariably made worse by any unusual disturbance of this organ. These cases improve under treatment directed to restore the digestive organs to the normal condition, and without this the result will not be lasting or satisfactory.
Scheppegegrell.

Experimental Studies Concerning Douches and Washings of the Naso-Pharynx.

571. JACOBSON, ALEXANDER, St. Petersburg. (*Annales des maladies de l'Oreille, du Larynx, du Nez, et du Pharynx*, No. 8., August, 1898.) A historical introduction to this subject states that not Trautmann, but Weber (1864) was the first man to advise nasal douches. The douche has been abandoned by many physicians on account of the dangers connected with it. To avoid these the author advises the use of a small rubber canula applied with forwardly overhanging head and not too high pressure or too large quantities of fluid. For washing of the nasopharynx not more than 15 cc. at a time in adults are used and only a few drops in children. To ascertain how much pressure is needed to make the fluid enter the middle ear experiments on the cadaver showed great differences. The lowest pressure was 3 cm., the highest 27 cm., although in both cases the Eustachian tube was normal. Equally surprising are the facts that with very low pressure the fluid may be forced into Highmore's antrum and the frontal sinus. Therefore the author states that all cases of suppurations of the maxillary sinus do not require operation, but often yield to treatment with Hartman's canula. In ozena he prefers the douche to the treatment with tampons.
Holinger.

Rhinomiosis (Reducing the Nose by Operative Measures).

572. JACQUES, JOSEPH, Berlin. (*Berliner Klin. Wochenschr.*, No. 40, Oct. 3, 1898.) The author, who reduced ears of extraordinary size, was called upon to attempt to relieve the physical depression of the patient, due to the jibes this modern Cyrano de Bergerac was subjected to because of

his perfectly healthy but (both on account of its form and dimensions) conspicuous nasal organ. The article contains 5 figures, two of which show the patient "before" and "after," while the others illustrate the different steps of the operation.

Before the operation:

1. The bridge of the nose was too long; *i. e.*, the point of the nose hung too low.

2. The point was too prominent; thus making the nostrils quite wide.

After the operation:

1. The nose was rather too short than too long.

2. The nose did not project too much, and the nostrils were, therefore, proportionately smaller.

3. The nose has been rid of the "hump;" it is straight.

	Before. cm.	Now. cm.	Diff. cm.
1. Distance from the root to the end of the nose - - - -	6½	5½	1
2. Distance from the point of the naso-labial fold - - - -	4½	3½	1

The operation can be divided into three stages:

1. Removing the skin which is not needed for the new nose, and reducing the nostrils.

2. Cutting away the superfluous portions of the bony and cartilaginous roof of the nose.

3. Reducing the size of the septum, in order to elevate point of the nose.

The first act was done in the following manner: Two straight diverging incisions were made from the middle of the root of the nose to the nostrils. In the upper part, they penetrated to the nasal bones and the triangular cartilage, while, lower down, the nasal alæ were severed in their whole thickness. In the same way, two other symmetrical incisions were made, about 1/2 cm. further inward, sparing the point of the nose, and toward the middle of the nose, uniting about 1 1/2 cm. above the point. There was thus formed an equilateral triangle of skin with two prolongations downward, containing in parts pieces of cartilage (corresponding with the alæ). This was dissected away from the underlying tissues.

Then, in the second stage the remaining skin was separated for about 1 cm. from the nasal bones, and the triangular cartilages. A chisel was placed first on the one, and then the other, nasal bone in the direction which the nose was to have in the future, and driven through them with a few blows. In the same direction and extent the septum was treated with the chisel, thus creating a cleft. A knife was introduced through the opening, and with it the lower part of the roof (not only the hump) removed by cuts directed downward, through the septum, and lateral walls of the nose. Both nasal cavities were thereby exposed to view, the upper part, however, only through two narrow chinks.

The third stage consisted in a wedge-shaped horizontal excision from the lower part of the septum; the upper incision going through the quadrangular cartilage, the lower through the membranous septum. This completed the operation itself, to suturing. First, the margins of the wound made by the wedge-shaped incision were united (septal suture); then, beginning at the root of the nose, the margins of the wound in the skin. These last sutures form an inverted Y. The operation lasted a little more than one hour. The wound healed by first intention; the patient was discharged on the thirteenth day. The scars are linear and inconspicuous.

Morgenthau.

**Chronic Posterior Pharyngitis, and its Treatment with
Curetting.**

573. MALHERBE. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 4, Oct. 1, 1898.) In many cases where we find in adults hypersecretion in the pharynx, we find in the history symptoms of adenoids in younger years. Such patients try all kinds of things to get rid of these secretions. The author says they cough through the nose and blow the nose through the mouth. Examination reveals hypertrophies and often cysts of the Luschka tonsil. The remedy the author sees in curetting of the naso-pharynx.

From the seven observations published, there is no doubt that M. Malherbe speaks of what we call adenoid vegetations in adults. He treats them as above said with curetting under a narcosis of bromide of ethyl.

Holinger.

A Case of Rhinolith.

574. MIAT. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 33, Sep. 17, 1898. Read before the French Laryngol. Society, May, 1898.) This case was of very long standing, the first symptoms dating back as far as 1867. Manifold symptoms developed: sick headache, nervous symptoms, melancholia, etc. Even Charcot had no idea of the true nature of the trouble till in April, 1889, a piece of a probe incrustated with lime salts was removed from the patient's nose, after which he made a quick recovery. The author adds some suggestions for treatment.

Holinger.

A Case of Subjective Parosmia.

575. LILLIE, Noquet. (*Rev. hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 35, Aug. 27, 1898.) Parosmia may be produced by cerebral lesions, carcinoma, glioma, tubercular tumors, gumma. Intoxications also, especially with lead, may be the cause. In pregnant and hysterical women parosmia has been noticed.

Finally, diseases of the nose may be connected with parosmia. Charazac reported a case of extreme anemia of the nose with parosmia. The author saw two cases, one of which was very accurately studied. A lady of twenty-five suffered from a very disagreeable subjective smell of putrified meat which spoiled every meal for her. The doctor could not smell anything, and on examination the only abnormality was that the lower turbinated bodies touched the septum. After trying many other methods of treatment without avail, these turbinated bodies were reduced, and gradually the parosmia disappeared.

Holinger.

Fracture of the Nose Complicated with a Rhinolith.

576. REARDON, T. J. (*Boston Med. and Surg. Journal*, July 28, 1898.) The patient, aged 28, sustained an injury of the nose while riding a bicycle. On examining the nostril, a grayish mass was found lying close by the side of the lower turbinal on the right side. When removed it proved to be a rhinolith one cm. in diameter, with a cherry-stone as a nucleus.

Scheppegrell.

The Effect of Hypertrophy of the Inferior Turbinal on the Nasal Septum.

577. SOMERS, L. W. (*Universal Med. Magazine*, July, 1898.) The author believes that deflections, thickenings and spurs of the cartilagemous plate of the septum are to some extent dependent upon pneumatic traumatism, the inspired air-current being altered and deflected in its course through the nasal chamber by variations in the surface topography of the anterior end of the turbinal tissue.
Scheppegrell.

Fractures of the Bones of the Face.

578. WARDEN, C. C. (*Medical Record*, July 23, 1898.) A description of the more common causes of fracture of the inferior, nasal, superior, maxillary, malar, palateal, inferior and lachrymal bones, with a description of the symptoms and methods of treatment.

In fractures of the nasal bones, the deformity is usually marked and a tendency to repair active. A week will suffice to bring about such firm union, that any attempted repair of the deformity may be well nigh impossible. Where there exists considerable fragmentation, reduction is always difficult. The bone should be moulded into position by the fingers of the operator from without, aided by the counter-pressure from within of a stout probe or director. General anæsthesia is usually required. Where there is a tendency to slip on the part of the fragments, they may be anchored with a hairlip pin or with metal braces, exerting steady pressure from within. Tamponing should be avoided. An ordinary hairpin properly bent and adjusted, the free end of which is imbedded in a thin layer of cork which is retained on the upper lip by adhesive rubber strips, usually gives sufficient pressure. A moulded thin felt splint adjusted so as to cover the entire bridge of the nose and the cheek, retained in position by adhesive straps, affords full protection from without.

Fibroma of the Naso-Pharynx, with Report of Case.

579. WOODSON, L. G. (*Laryngoscope*, August, 1898.) The patient, aet. 18, had suffered for two years from a thick tenacious muco-purulent discharge from the nose, nasal stenosis which progressed to complete obstruction, repeated attacks of epistaxis, anosmia, and for six

months a very annoying cough, with distressing dyspnea. A large tumor was observed, completely filling the nasopharynx and pressing the soft palate downward and forward, and projecting for a half inch or more into the oropharynx. The tumor, which was hard, dense and very slightly movable and of a reddish color, was attached by a broad base to the pharyngeal vault. The tumor, which measured $2\frac{1}{2}$ inches in length by $1\frac{3}{4}$ inches in breadth, was removed by means of an electro-cautery snare, however, the hemorrhage was profuse and persistent. Fourteen months later, on account of a recurrence, a second operation was performed, with a modified Jarvis snare introduced through the agency of Bellocq's sound, five and one-half hours being consumed in slowly tightening the snare, with a few drops of blood as a result. A similar recurrence was treated in the same way.

He deduces the following conclusions:

1. Few, if any, fibromata cannot be successfully and safely extirpated.
2. The method of operation has little or no influence in preventing recurrence.
3. Operation should only be resorted to as a relief of urgent symptoms. After adolescence it is generally unnecessary.
4. The greatest danger is from hemorrhage.
5. The galvano-cautery loop is rapid, but it fails to absolutely prevent hemorrhage.
6. The cold-wire ecraseur is best, being bloodless, painless and easy of manipulation.
7. Injections of escharotics are objectionable.

Loeb.

Foreign Body in the Nostril for Five Years.

580. PRATT, J. A. (*Laryngoscope*, August, 1898.) By means of a strabismus hook nearly one-half of a seed (probably that of a plum,) was removed. *Loeb.*

Scar Tissue in the Pharynx, Following Scarlatina and Complicating Adenoid Vegetations.

581. FELT, C. L. (*Laryngoscope*, August, 1898.) The posterior pillars were free above, but about 1 cm. below their juncture with the uvula both were drawn toward the

median line and converted into scar tissue, which was continuous with scar tissue on the pharynx proper between the pillars. *Loeb.*

Injury to Inferior and Middle Turbinals in Operation for Deviated Septum.

582. STUCKEY, J. A. (*Laryngoscope*, September, 1898.) Attention is called to certain injurious results following Asch's operations, such as adhesion of the turbinals to the system. In one case turbinectomy was necessitated.

Loeb.

Notes on a Case of Membranous Rhinitis.

583. LAKE, R. (*Laryngoscope*, September, 1898.) A patient, aet 54, had symptoms of subjective smelling and nasal obstruction. Chronic rhinitis, with unusual pallor, was present, with a number of whitish flakes of apparently coagulated secretion. Ten months later he again appeared to seek relief from the old trouble, which had increased in severity. Bacteriological examination showed no other organisms present, except staphylococcus pyogenes aureus.

Loeb.

Cysts of the Floor of the Nose.

584. KELLY, A. B. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The writer excludes the cysts occasionally found in polypi, and the so-called cysts of the middle turbinate or septum, and reports three cases. The patients were all females, and the tumors in each instance appeared in exactly the same situation, namely, on the floor of the nose at its anterior end, just behind the junction of the skin and mucous membrane. The first was of the size of a pea, and when punctured subsided without recurrence. In the second it was slightly larger, and likewise disappeared after puncture, and did not recur after puncture. The third gave rise to marked facial disfigurement and considerable suffering. Upon puncturing the cyst at its most prominent point, a pale yellow transparent fluid exuded, and the nose assumed its normal appearance. At first a watery fluid poured out of the affected side, and later this became purulent. The sac was dissected out from its bed upon the periosteum in the incisor fossa extending beneath the floor of the vestibule from the middle line to beyond the outer margin of

the ala. The wall of the cyst was lined by epithelium from two to twelve cells deep. The cells of the deepest layer have a more or less cubical form, and were set on a broad basement membrane. The epithelial nuclei had a circular or oval outline, and stained sharply throughout. The subepithelial matrix was in great part composed of loose fibrous tissue, through which very numerous blood vessels coursed, and here and there the tissue was over-run with round cells. The fleshy mass at the lower end was composed of altered gland tissue.

With the object of finding anatomical conditions which favor the development of cysts in this particular region, the writer made a series of transverse and sagittal sections of the lining membrane stripped from the floor of the nose. The sections show that commencing posteriorly the lining membrane in almost its entire thickness is made up of glandular tissue; in passing forward and approaching the alar cartilage, however, the membrane increases in depth and the glands are gathered into large sharply defined collections, with fibrous tissue between. From these long ducts pass upward and open the surface, where its characters are those intermediate between skin and mucous membrane, and in several instances cyst-like dilatations were observed. The fact that the position of these long ducts coincides with that of the cysts just described, raises a strong presumption as to their origin, so that there is justification in regarding them retention cysts.

Loeb.

**Contribution to the Complications Following Extirpation of
So-called Adenoid Vegetation.**

585. SENDZIAK, JOHN. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The writer adds malarial fever to the following complications expressed in his "Manual of Diseases of the Nose," etc.:

1. Affections of the middle ear.
2. Acute lacunar tonsillitis.
3. Secondary hemorrhage.
4. Impaction of fragments in the air passages.

Loeb.

The Rationale of Removing Adenoids for the Cure of Chronic Suppurative Otitis Media of Children.

586. LAKE, R. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The removal of adenoids necessarily allows a restoration of the potency of the Eustachian tube, which permits drainage and, when the nose is blown, tends to clear the cavum and external meatus of discharge.

Loeb.

A Case of Foreign Body in the Naso-Pharynx.

587. MILLIGAN, W. (*Journal of Laryngology, Rhinology and Otology*, June, 1898.) The foreign body proved to be a marble, which had become impacted in the naso-pharynx between the septum and post-pharyngeal wall.

Loeb.

Report of a Death Following Immediately an Operation for Naso-Pharyngeal Adenoids Under Chloroform.

588. HINKIE, F. W. (*Journal of Laryngology, Rhinology and Otology*, August, 1898.) The patient, a boy aet 8, on account of vomiting and incidental delays, was given an ounce of chloroform. Just as the operation was completed, he gave a few hurried shallow gasps and died.

The writer concludes:

1. Statistics show an exceptionally high mortality from the chloroform anesthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

2. The observations of the Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type that has been peculiarly susceptible to chloroform narcosis.

3. In view of the statistical and pathological data presented, the general use of chloroform in the operation for hypertrophied tonsils or naso-pharyngeal adenoids is inadmissible.

Loeb.

Paralysis of the Abductors in Progressive Organic Disease.

589. MACINTYRE, J. (*Journal of Laryngology, Rhinology and Otology*, May, 1898.) The writer presents the views which Grossmann advances in opposition to those of Semon and of most laryngologists and neuro-physiologists regarding the validity of Semon's law.

Loeb.

Treatment of Ozaena by Anti-Diphtheritic Serum.

590. (*Journal of Laryngology, Rhinology and Otolaryngology*, August, 1898.) As a result of his experience in the use of this agent in ten cases the writer concludes that the subcutaneous injection of anti-diphtheritic serum in cases of genuine ozaena has an immediate and very marked effect upon the mucous membrane of the nose, and that it is the most effective treatment at present used. The proper dose for adults is 10 c. c. of a serum containing 100 antitoxin units in each c. c., and this may be increased to 15 c. c. It is best to wait eight to 12 days before repeating the dose; 5 c. c. may be employed for children. *Loeb.*

III.—MOUTH AND PHARYNX; TONSILS, DIPHTHERIA.
A Case of Diphtheritic, Gangrenous Angina, Complicated with Mastoiditis. Trephining. Recovery.

591. BAR, (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.* No. 39, September 24, 1898.) The gangrene extended as far as the gums, the inner surface of the jaw and the lips. No Klebs-Loeffler bacilli were found, therefore no antitoxin was used. At the acme of the attack, a mastoiditis made an operation necessary. A resulting fistula persisted for three months, but the child, a girl of nine years, recovered. *Holinger.*

Two Cases of Ludwig's Angina or Sublingual Phlegmon.

592. CASSELBERRY, W. E. (*Chicago Med. Recorder*, May, 1898.) In the first case, the sublingual phlegmon appeared marked, the mouth could not close, and there was diffused tumefaction of the cutaneous surface beneath the jaw, but insufficient to indicate any certain line to the approach of a possible abscess. Edema of the larynx supervened, and the patient died in spite of a prompt tracheotomy.

In the second case the symptoms also appeared grave, but fluctuation was evident in the vicinity of the right sublingual salivary gland, the opening of which gave relief. The patient made a tardy recovery.

The author advises prompt tracheotomy as soon as difficult respiration supervenes. *Scheppegrell.*

The Use of Antitoxin.

593. CATTERMOLÉ, G. H. (*Medical News*, August 20, 1898.) The general use of antitoxin as a prophylactic during epidemics, and its careful and skillful use in all cases of the disease, would, in the opinion of the author, reduce the death from diphtheria to *nil*. Erythema is the most serious complication attending its use, but is not of sufficient importance to make one hesitate in the application of this agent. *Scheppegrell.*

Angioneurotic Edema of the Tongue.

594. HALLOCK, F. K. (*Atlantic Med. Weekly*, July, 1898.) The patient, a school teacher of 27 years, had been suffering from simple neurasthenia. After eating some ice cream and macaroon cake, her tongue began to swell and soon almost filled the mouth. Cough and dyspnoea developed and the left side of the neck showed marked external congestion. The left side of the nose also began to swell, and respiration became so difficult that there was fear of suffocation. One-half hour later, the symptoms began to subside, and an hour afterwards all signs of the angioneurosis had disappeared. The attack occurred on the day on which the menstrual function was due. *Scheppegrell.*

Glosso-Epiglottic Phlegmon.

5. CAZ, JACOB, St. Petersburg, Russia. (*Fraenkel's Archiv.* VIII, 2374. The cellular tissue between the root of the tongue and the epiglottis is exposed to injuries, physiologically, in the act of swallowing. The mucous membrane of the glosso-epiglottic fossa can easily be lacerated by bones, etc., thus opening the way for various morbid agents. Tracheotomy may be indicated on account of dyspnea if incisions per os do not bring relief. There is a well defined phlegmon of the glosso-epiglottic region. The fossae should always be carefully searched, especially when there is difficulty in swallowing and breathing. *Morgenthau.*

Porospermiosis-Pharyngea.

596. DONOS-CORTES. (*El Siglo Medico*, Madrid, April 24, 1898, No. 2313.) A woman of fifty, in poor health, said she had been sick for weeks, with a trouble in the throat which made swallowing difficult. In the mouth

nothing abnormal was seen, but there was fetor of the breath on depressing the tongue; this was found to come from an ulcer on the right of the fauces at the base of the tongue. The tumor was the size of a hazelnut, and looked like an epithelioma (this diagnosis was not confirmed by subsequent microscopical examination), although the age of the tumor and the freedom from adjacent tissue infection were against it. The temporary treatment by Fowler's solution systematically, and resorcin locally cured, much to his surprise. All the appearances were those of psorperma (Daner), or molluscum contagiosum (Paget), or coagulation necrosis (Weigert.) *Hale.*

Observations in Diphtheria.

597. JEROWITZ, H. G. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) The majority of cases of diphtheria are mild and affect only the tonsils and pharynx. The exudation with such affections lasts from one to two weeks. Removal of the membrane is useless, as septic infection is promoted by denuding the surface, and, besides, the membrane soon reappears and remains longer than if left undisturbed. The involvement of the larynx is always sudden, and comes as a new attack and not by extension of the diphtheritic process. It takes place in about four per cent. of the cases and is most to be dreaded between the ages of three and fifteen.

Every case observed which was complicated with uremia had postdiphtheritic paralysis. Antitoxin is a valuable remedy, and intubation and tracheotomy will become less necessary when its true worth is recognized.

Scheppegrell.

The Tonsil as Port of Entry of Serious Infections.

598. JESSEN, Hamburg, (*Therapeut. Monatsh.* 1898, VI, 345.) In the meeting of the Hamburg Medical Society, which was held April 19, 1898, a paper with the above title called forth an interesting discussion. Jessen reported four cases in which a general infection seems undoubtedly to have followed a tonsillar affection, although such instances are but rarely reported, while rheumatic affections have often been observed in this connection.

1. Girl with angina; after three days, diffuse exanthema, (Erythema papulatum, Trousseau); the tonsillar deposit

contained staphylococci and streptococci; the blood was sterile, which is, however, also met with in sepsis.

2. Comatose girl; tonsils, free; cutaneous hemorrhages; nephritis: death. Autopsy: surface of tonsils smooth; in the interior, multiple abscesses, as well as in most organs; fresh endocarditis.

3. Girl with angina; deposit disappears after two days. After eight days, pleurisy, pericarditis, pneumonia. In the deposit strophococcus pyogenes, as well as in the pneumonic sputum; no pneumococci or influenza bacilli.

4. Girl with severe angina; deposit contains staphylococcus aureus; the next day pleurisy; in the exudate microbes; pericarditis; pneumonia, death. Autopsy: Tonsils smooth, general pyemia, everywhere the same microorganisms.

The essayist believes that such infections are not at all rare, but that the connection is not often recognized, as the patients usually seek treatment after the angina has subsided. When the surfaces of the tonsils are smooth, the disease may start from abscesses in their interior. The diagnosis may be based on the appearance of the deposit, which is in streaks, not limited to the lacunae.

One instance has been reported of the same microorganisms being found in fifteen cases in a dairy, in all the deposits and on the udder of a cow.

Aside from these acute diseases, certain chronic infections may be transmitted by the same route. These are especially the cases which may make the impression of scrophulosis, in which the morbid agents have been brought from the pharyngeal ring, producing glandular swellings, skin affections, etc. While the anti-scrophulous therapy is almost valueless, removal of the affected pharyngeal tonsil effects a cure; of course, secondary tuberculosis must be excepted.

Rumpf saw angina precede joint affections in 30 to 50 per cent.

Lenhartz stated that the disease may originate also in the surroundings of the tonsil.

Septic angina does not present a typical picture; lacunar as well as phlegmonous tonsillar diseases may lead to it; the dirty appearance of the deposit is possibly characteristic. The examination of the blood during life is gen-

erally negative, while it may be positive after death because of the rapid development of the microorganisms at that time. Facial erysipelas may also start from the pharynx. Fraenkel contended that any inflammatory process down to the larynx may lead to such an infection. He had a positive result in examining the blood of a child suffering from pyemia resulting from angina. The patient recovered, showing that even under the conditions the prognosis is not absolutely unfavorable. Abscesses are often found post-mortem in the interior of the tonsil, while the surface was smooth, without having led to anything further.

Morgenthau.

**Removal of the Epitheliomatous Tonsil by the External Route,
(Pharyngotomy.)**

599. JONAS, A. F. (*Jour. Ame. Med. Assn.*, August 13, 1898. The extensive operation of Czerny and of Mikulicz does not seem necessary in these cases. After a thorough and extensive enucleation of all the cervical glands, whether visibly affected or not, and after a division of the sterno-cleido-mastoid and its divided ends reflected and hemorrhage carefully controlled, with a wide separation of the wound margins by retractors, and the head strongly drawn to the opposite side, and strong traction downward of the arm and shoulder on the affected side being made, sufficient room was obtained for all necessary manipulations.

In both of the cases described, the entire larynx and nasopharynx could be inspected, so that a thorough removal of all affected tissues could be made under direct ocular inspection. In neither case was a preliminary tracheotomy necessary. In the first case the recovery was uneventful, while in the second, the patient suddenly discovered on the third day after the operation that the vision of the left eye was abolished. An ophthalmoscopic examination showed a choked optic disk, which was supposed to be due to embolus, although how the latter could reach the eye was not understood. The patient died three months later from catarrhal pneumonia, without any recurrence of the epithelioma in the throat.

Scheppegrell.

Death Rate in Diphtheria.

600. KASSOWITZ. (*Jour. Amer. Med. Assn.*, July 30, 1898.) The author denounces antitoxin, stating that the published percentages are misleading and that the actual mortality from diphtheria has not diminished in late years as claimed. He cited statistics from Moscow, London, New York, etc., which prove that the number of deaths has not decreased, whatever the percentages may show, while statistics everywhere prove that tracheotomy, primary or secondary (after intubation) is still followed by death in 70 to 90 per cent.; that the number of cases of consecutive paralysis has actually increased, and that renal complications are not affected by the antitoxin, while croup continues its course unchecked by the injections. He even refuses to consider the Klebs-Loeffler bacillus the specific cause of diphtheria, which he says is yet to be discovered. In the cities (Vienna and Paris), in which the mortality is actually lower in recent years, the disease has been of a milder type.

Scheppegrell.

Notes of a Case of Chronic Abscess of the Soft Palate.

601. LAURENS, GEORGE. (*Annales des Malad. des Oreilles du Lar. du Nez et du Phar.* No. 9., September, 1898.) Here is the history of a patient of forty-eight years. Every seven or eight months, without any pain or other discomfort, he suddenly smells an extremely fetid odor in his nose and mouth. Then for forty-eight hours he expectorates small dry and very offensive masses. They increase on pressure on the sides of the neck. The masses have their origin in deep cavities above the tonsils between the pillars of the palate. These cavities were widely opened, curetted and cauterized. The disease was described in 1897 by Lermoyez and Cartaz.

Holinger.

Diphtheria as Viewed by the General Practitioner During Last Year.

602. MCALISTER, A. (*University Med. Magazine*, Sept. 1898.) The author recommends as the most useful preparation for general practice, a product permitting the administration of 1,000 units of antitoxin in from two to four c. c. of serum.

Scheppegrell.

Indications for Intubation.

603. McCLANAHAN, H. M. (*Jour. Amer. Med. Assn.*, October 29, 1898.) The majority of cases recognized early are amenable to treatment by antitoxin. A certain number, however, fail to respond to the remedy. In these cases, if after the end of twenty-four hours a study of the symptoms leads to the conclusion that the patient is not better, then intubation should be done. In cases presenting any one of the following symptoms prominently, viz: deep epigastric recession with each inspiration, labored and prolonged expiration, extreme restlessness, spasmodic attacks coming on at intervals, or persistent cyanosis, then intubation should be performed. In cases seen late, it would be wise to intubate and administer antitoxin rather than to give the remedy and wait for its effect.

Scheppegrell.

Antitoxin in the Treatment of Diphtheria.

604. McCOLLOM. (*Boston Med. and Surg. Jour.*, August 18, 1898.) From an examination of the mortuary statistics and from a clinical study of 4,200 cases of diphtheria, the author concludes that the death rate from diphtheria has been reduced to a remarkable degree by the use of antitoxin; that in order to obtain full benefit of this agent, it is important to give large doses early in the course of the disease; that the antitoxin should be frequently repeated until the correct effect is produced on the membrane; that it does not produce albuminuria and does not cause heart affections; that the physician, who does not use anti-toxin in the treatment of diphtheria, fails to do his duty to the patient.

Scheppegrell.

Glossitis in Typhoid Fever.

605. McCRAE, THOS. (*John Hopkins' Hos. Bulletin*, July, 1898.) After 24 days of normal temperature, the glossitis was the first symptom of a relapse. The blood removed from the tongue in taking the culture gave relief, from which the author concludes that free incision into the substance of the tongue is the best treatment in severe cases. In over 700 cases of typhoid fever treated in the John Hopkins' Hospital, this was the only one complicated with glossitis.

Scheppegrell.

Diphtheria Bacillus No. 8.

606. PARK. (*Medical Record*, July 23, 1898.) A bacillus was isolated from a case in which the clinical diagnosis was "tonsillitis." It was found to be the most virulent bacillus that had ever been examined, which would kill a medium-sized guinea pig in a dose of 1/200 cc.

Scheppegrell.

Rheumatic Pharyngitis.

607. SOMERS, L. S. (*Medical News*, July, 1898.) A rheumatic affection may be the cause of tonsillitis, or rheumatism may result from infection through the tonsil, the latter statement depending upon the recognition of the bacterial origin of disease. The clinical history of two cases is given in illustration.

Scheppegrell.

The Toxin of Diphtheria and its Antitoxin.

608. SMITH, T. (*Boston Med. and Surg. Journal*, Aug. 18, 1898.) A careful review of the subject on the toxin of diphtheria and its antitoxin. While admitting the obscure nature and action of the toxin and antitoxin there is no doubt as to their reality, that we have reached the right path in studying them, and that a continued investigation is only necessary in order to gain better practical results in the combatting of toxic disease.

Scheppegrell.

Peritonsillitis or Quinsy; Cause and Treatment.

609. STUCKEY, J. A. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) A study of selected cases has convinced the author that the rheumatic or uric diathesis is the most important factor in this condition. This etiology should not be lost sight of in the treatment. In cases that progress to suppuration, early and free puncture is indicated.

Scheppegrell.

Hemorrhage Following Tonsillotomy.

610. ZIMMERMANN, Milwaukee, (*Archives of Otology*, Vol. XXVII, No. 4.) The author after describing a case of primary hemorrhage which occurred in his practice reviews the literature and finds it of very rare occurrence.

Capart saw but one severe hemorrhage in two thousand tonsillotomies and in Sajous's Annual of 1891, Vol. IV., only nine cases of hemorrhage are recorded from a collection of twenty thousand cases.

How can the occurrence of hemorrhage after tonsillotomy be avoided?

Tonsillotomy should never be performed in bleeders or where there is a hypertrophy of the left ventricle.

Not when the tonsils are in a state of acute inflammation.

The tonsil should not be pulled out too much between the faucial pillars and no pressure from outside should be exerted toward the instrument.

After the operation the patient should keep quiet, not travel, avoid alcoholics and not eat solid food for several days.

After bleeding ceases the author uses a powder of iodoform mixed with tannic acid to dust on the cut surface.

Compression, digital or with a pair of long forceps, one blade applied to the cut surface, the other on the outside close to the angle of the jaw.

If hemorrhage still persists, remove all clot and make a very careful examination to see whether a single point is bleeding. This may be cauterized by Paquelin's thermocautery or by a thick probe made red-hot.

Grasping the bleeding spot with artery forceps leaving these in place for a while and then make torsion.

Dawbarn devised a purse-string ligature around the bleeding surface, made with four stitches by a large semi-circular needle and needle-holder. In desperate cases ligature of the external carotid.

Campbell.

Papilloma of the Tonsil.

611. YEARSLEY, M. (*Laryngoscope*, August, 1898.) At a recent meeting of the Laryngological Society of London, Sir Felix Semon remarked that he had hitherto believed that benign growths of the tonsil were practically nonexistent. Having collected as many instances as possible, the writer has come to the conclusion (1) that true papilloma of the tonsil is uncommon; (2) that other benign growths are comparatively frequent; (3) that the latter are often of inflammatory origin, and connected with enlarged tonsils. Thirty-four cases were collected, of which 21 were examined microscopically, 8 not examined, and 5 of which there is no record. Four proved to be true

papillomata, while the remainder proved to be lymphadenomata or fibromata. *Loeb.*

Urticaria; Involving the Soft Palate, Causing Alarming Symptoms.

612. LEDERMAN, M. D. (*Laryngoscope*, September, 1898.) The patient, aet 38, suddenly chilled while taking an ocean bath. Multiform swellings appeared on his body and face, marked difficulty in swallowing; later, these increased. The soft palate and uvula were intensely edematous. Calomel and compound jalap powder were given internally and ice was used locally, and in six hours the symptoms had almost entirely disappeared. The patient claims that he had struck a jelly fish while bathing.

Loeb.

IV.—LARYNX.

Rare Cases of Polypi of the Larynx.

613. BAR, LOUIS. (*Annales des malad. de l'Oreille, du Lar. du Nez et du Phar.*, No. 9, September, 1898.) The first patient is a servant of 65 years, with a fibroma at the anterior commissure of the vocal cords. Removal was not allowed.

2. A seamstress of 35, with the usual symptoms of laryngeal disease, had a fibroma of the anterior third of the right vocal cord of the size of a pea. No operation. The author thinks that it is something different from the "sän-gerknöten" of the Germans.

3. A papilloma of the inter-arytenoid region. It was excised and the base curetted. The hoarseness persists. Later on a tumor, either tubercular or malignant, was seen at the ventricular bands.

4. Cysts of the vocal cords in a girl of 25. She suffers at times from attacks of aphasia. The site of the vocal cords is occupied by two large bodies, resembling very much two large polypi. No operation being allowed, the diagnosis must remain uncertain.

5. Fibromyxoma, the size of a pea, of the left vocal cord in a man of 35. No operation.

6. A lipoma of the subglottic region was removed with

laryngotomy. The patient was a woman of 25, with marked cyanosis. The microscope showed a lipoma, which is a very rare form of a tumor in these regions. It was of the size of a cherry, and had to be cut in two in order to be removed.

Holinger.

Goitrous Tumors in the Larynx and Trachea.

614 . BAUROWICZ, A., Cracow, Australia. (*Fraenkel's Archiv.*, VIII, 2362.) In February, 1898, the author was consulted by a woman of 21, who wore a canula and had a scar on her neck extending to the sternum along the anterior margin of the sterno-mastoid muscle. She had been operated upon October, 1897, to relieve the dyspnea caused by a tumor, which had been increasing in size for about a year. The left vocal cord stood immovable in the median position. On closing the mouth of the canula, a marked stridor showed the obstruction to lie above the canula. The examination with a mirror from the mouth and from the tracheal fistula revealed a broad-based tumor on the whole left lateral and the posterior walls, filling the lumen of the lower portion of the larynx, so that a very narrow sickle-shaped chink separated the growth from the right wall; it extended to the window of the canula into the tracheal walls. It had a smooth surface, elastic consistency, red color, and a covering of unchanged mucous membrane. With dependent head, an incision was made from the tracheal fistula through the remaining four rings and the cricoid cartilage. The growth was removed with scalpel and scissors. It was intimately connected with the spaces between the tracheal rings and posterior tracheal wall. Microscopically, thyroid gland tissue with slight colloid degeneration was found.

The goitre had invaded the laryngeal cavity from the outside. These growths do not recur. As the growths have a broad base, and are adherent to the wall, it is not possible to remove them entirely by operating. The absence of recurrence speaks against the embryonic theory of their origin. In order to guard against secondary hemorrhage a tampon may be introduced, although Bruns omitted it and was able to discharge his patients on the 21st, 17th and 13th day after the operation.

Painting with cocain is advantageous, especially if the patient should awake from the general anesthesia too soon.

Morgenthau.

Intubation for Spasm in a Child of Seven Months.

615. BONAIN. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 36, September 3, '98.) The tube remained in situ for 390 hours, attempts at removal having been made nine times during 22 days. Recovery. Paper read before the French Soc. of Laryngol., May, '98.

The title reports nearly all there is to be said of interest. It may, however, be especially mentioned that ebony tubes were used, which are not heavy and do not provoke ulceration in the larynx. The intubation was done on account of swelling of the mucous membrane of the cricoid cartilage.

Holinger.

Resection of Larynx.

616. CISNEROS, Madrid (*El Siglo Medico*, No. 2318, May 29, 1898). reports a partial resection of the larynx in a man of 50, physician, who had gradually lost his voice. The palate and pharynx were normal. In the larynx, on the left vocal cord, was seen a reddish swelling, which proved microscopically to be epithelioma, although subjectively there was no cough or dysphagia, nor objectively no ulceration or glandular infection. The whole of the left side of the larynx was excised. Healing was prompt, and six months elapsed without recurrence.

Hale.

The Treatment of Malignant Tumors of the Larynx, the Tongue and the Nose with Arsenious Acid.

617. COSTININ, A. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, No. 38, September 17, '98.) The author reports three cases of malignant tumors that were treated with arsenious acid. In the first case the result was an apparent cure, such as Cerny and Trunczek have reported. The two other cases were too far advanced. Still there was marked relief. The arsenious acid destroys all diseased tissue. Symptoms of intoxication were never noticed. The pain was very moderate.

Holinger.

Submucous Hemorrhages from the Vocal Cords.

618. GAVEL, J., Lyons. (*Annales des malades de l'Or. du Lar. du Nez. et du Phar.*, No. 10, Oct., 1898.) The hemorrhages from the vocal cords are divided according to their origin into traumatic, dyscrasic, organic, inflammatory and purely mechanical hemorrhages. There are four observations of the author:

1. A case of submucous hemorrhage of the right vocal cord, with two recurrences in a woman singer.

2. The second was a first bass singer of the Grand Theater. He did not suffer very much, and in less than a week was able to resume his work, although at the examination his right vocal cord was found entirely red.

3. Hemorrhage of the left vocal cord in an architect who was suffering from hay fever.

4. In the left vocal cord of a nervous gentleman a hemorrhage occurred while he was drinking. This disease is of minor importance. Recovery from it results in 10 to 15 days. It occurs mostly in singers. In women, menstruation has a certain influence. *Holinger.*

A Case of Anterior Epiglottic Angina.

619. MOLL. (*Rev. hebdom. de Laryngol., d'Otol. et de Rhinol.*, September 24, '98.) A gentleman of 50 years, who lived a quiet and healthy life, was one night suddenly attacked by a severe sore throat. On examination the tonsils and the pharynx were unaffected. Only the anterior surface of the epiglottis being much swollen and red. In the course of the next few days three small abscesses formed, which were incised, and the patient made a quick recovery.

The author thinks that an epidemic of influenza, which was present at that time, might have been the cause.

Holinger.

Congenital Laryngeal Stridor.

620. STAMM, C., Hamburg-Rothenburgsort. (*Muench. Med. Woch.*, No. 38, September 20, 1898.) Congenital laryngeal stridor, or infantile respiratory spasm, was the name given, in 1892, by John Thompson, to a group of symptoms described by him as a result of observing five cases. It is not mentioned in the common text-book on diseases of children and of the nerves. It resembles

somewhat the laryngo-spasms of rickety children, and has, for that reason, attracted so little attention. Congenital stridor, however, begins either at birth or shortly afterward; while laryngo-spasms never appear in the first month, but generally at dentition. The youngest laryngo-spastic child, of whom Baginsky tells, 3 months old. Rickets are so frequent in children suffering from laryngismus stridulus that most authors assume a causal connection between them. In the cases of congenital stridor there were no signs of rhachitis nor of tetany, with which Loos associates laryngismus. Laryngismus occurs in more or less violent attacks with cyanosis, and, possibly, general convulsions; congenital stridor accompanies inspiration for weeks and months without cyanosis and, generally, without general spasms. There is not complete cessation of respiration, as is usual after the whistling inspiration of laryngismus. The latter is often called forth or made worse by yelling, while the dyspnea is improved or even stopped by it in the other disease. Laryngismus does not occur during sleep; an attack may set in when the child is just awakening; but the sleep is not disturbed by the breathing. In congenital stridor, however, inspiratory drawing-in and stridor are present during sleep. The cause of the congenital stridor cannot be found in the thymus gland, although, in the author's case, there was dullness over the upper third of the sternum; however, neither could the gland be palpated in the suprasternal fossa, as might be anticipated with such great embarrassment of breathing; nor were there any indications of blood and lymph stasis above the gland; nor could the stridor be influenced at all by pressing on the dull part or placing the head in different positions. The author inclines to the opinion that the disease is due to a central functional disturbance, an arrest of development of certain centers of co-ordination of respiration, perhaps near the calamus scriptorius; in which Semon and Horsley discovered the center of involuntary laryngeal movement. He also cites in favor of this hypothesis is his frequent observations of a similar, but rapidly disappearing stridor in little children just awakening from chloroform narcosis. Although the prognosis is generally good, the little patient's life may be endangered by gen-

eral convulsions. The dyspnea gradually subsides. Thomson reports a case in which it persisted to the second year. The author's patient improved markedly under phosphorus and cod liver oil after two weeks, and breathed freely after six weeks.

Morgenthau.

Notes on Syphilitic Laryngitis, with Cases.

621. STRAIGHT, H. S. (*Cleveland Medical Journal*, July, 1898.) In the first case, it was a question of syphilitic laryngitis or carcinoma, and in the second, of syphilitic laryngitis or tuberculosis. In both cases the patients strongly denied any primary infection. Both were cured by specific treatment.

Scheppegrell.

Unilateral Laryngeal Edema in the Climacteric Period.

622. UCHERMANN, V, (*Fraenkel's Archiv*, VIII, 2, 287.) A circumscribed edema, usually, however, confined to the skin, sometimes accompanies menstruation. It often is limited to the territory of one certain nerve, usually in the premenstrual period and preferably around the ankles, on the calves, the thighs or in the face (Leopold Meyer, Menstruation, Copenhagen, 1890, page 120). It disappears after the flow has begun, or, in amenorrhea, in the postmenstrual period. The urine is normal. The edema may also affect the throat. Bayer has observed edematous swelling of tuberculous laryngeal ulcers during such a period. Similar exanthemata appear in the climacteric period, but are of more uncertain duration—three, four, six weeks or more. They take the different forms of erythema, eczema, urticaria, acne, etc. Signs of irritation of the nervous system, especially of the vaso-motor and trophic nerves, are heat waves, congestions, local sweats, etc. Aside from urticaria, edema is evidently rarer in this period. As the author has never seen a case in the mucous membrane of the throat described, he reports one. A woman of 33 was brought to the hospital, August 13th, on account of dyspnea and dysphagia. She is nervous, has suffered occasionally from nervous cardiac asthma; no cardiac lesion; a few weeks ago she could not continue conversation after a little, and had some pain in swallowing. Edematous swelling of the left ary-epiglottic fold; no fever; no enlargement of lymph glands.

Scarification relieved breathing. A few days later the fold is again swollen to the size of a pigeon's egg; edematous; the same condition on the left side of the root of the tongue, Tonsil is clear. Four leeches on left side on level of the root of epiglottis; salicylate of soda and iodide of soda internally; relief. The tumor reduced to one-half its size; lungs healthy; no tubercle bacilli.

In December only a gelatinous remnant of the size of a pea was seen on the point of the arytenoid process. The tumor increased perceptibly at the time of former menstruation. She spent the next summer in the country, free from all disturbances and from trouble in the throat. Edema of the skin was never present. It is evident that the edema was of angio-neurotic origin from the sudden appearance, the lack of inflammatory signs, its restriction to practically one side, its connection with the menstrual period and its aggravation at that time, its gradual cessation simultaneously with the other nervous phenomena of the menopause, and its final course (no tuberculosis or renal disease).

The author adopts the theory of central nervous disturbance. Angio-neurotic edema may be produced by a vaso-motor spasm (acute pale edema, urticaria), or by vaso-motor paralysis (acute injected edema, chronic edema), impeding or obstructing venous reflux. The mechanical theory does not suffice, as Ranvier has shown that, on ligating the inferior vena cava, edema ensues only in that extremity in which the sciatic nerve has been severed at the time. Edema has, therefore, been explained as due to the vital secretory powers of the small blood vessels, or as the result of auto-infection by fibrinogen of the tissues. It has been found, from experiments, that both the tissues themselves and the congestion have part in the production of edema. It occurs easiest when preceded by hemostasis or anemia of the parts. Barlow-Lazarus refers to the congestion which takes place normally, *f.i.*, in active muscular exercise, in order to remove the products of combustion. If these latter are retarded in their removal, lymph is exuded; this lymph of an edematous part of the body, differing also chemically from normal lymph. If this explanation is correct, says Uchermann, the ultimate cause of nervous edema would be the

action of foreign substances on the tissue; in the same manner as edema is caused by certain articles of luxury and food (tobacco, strawberries, etc.), or by medicines (potassic iodide, ipecac). The nervous character of iodine edema has been pointed out by Avellis (*Wien. Med. Woch.*, 1892), who found in a patient with paralysis of the recurrent nerve, iodine edema only on the healthy side.

Morgenthau.

Acute Dyspnea Caused by Trendelenburg's Tampon Canula.

623. UCHERMANN, V. Christiania, Norway. (*Fraenkel's Archiv*, VIII, 2,292.) In operating for laryngeal cancer the canula, not appearing quite tight, was blown up again, when most violent dyspnea with cyanosis set in. The author thought for a moment of a reflex spasm of the bronchial muscles, but that did not tally with the violence of the attack, which fully resembled acute asphyxia (f. i., in acute laryngeal stenosis). The explanation was found when the experiment was repeated in the closed hand instead of the trachea. As the rubber ball approaches the firm wall it can, on further inflation, only expand upward and downward. It thus protrudes below the point of the canula and its lumen more or less. The rubber bulb used for inflating should be quite small.

Morgenthau.

Intubation Tube Retained in the Larynx for Thirty-Eight Days.

624. WRIGHT, F. W. (*Pediatrics*, Vol. V, No. 10, 1898.) In over 50 intubations this was the only case in which it was found necessary to retain the tube in the larynx for more than six days. A child of 3 years was recovering from measles when it developed dyspnea, which eventually required intubation. Every fourth day it was removed for cleansing, but had to be at once reintroduced, and it was only after the thirty-eight day that it could be permanently removed. Repeated examinations for the diphtheria bacillus proved negative.

Scheppegrell.

Intubation of the Larynx.

625. WRIGHT, W. (*Pediatrics*, Vol. VI, No. 2, 1898.) A careful description of the technique of intubation and extubation. A synopsis of a table of 50 intubations, in-

cluding 31 recoveries and 19 deaths. The average length of time that the tube was in the larynx of those who recovered was $2\frac{4.8}{100}$ days. In only one case did death occur later than 24 hours after intubation, which indicates that if the patient can be carried over the first $2\frac{1}{2}$ days a favorable prognosis may be expected. For good results, it is imperative that a large dose of antitoxin be given within 48 hours of the inception of the disease, and that at least ordinary intelligent nursing be bestowed upon the patient.

Scheppegrell.

Clinical Exploration of Laryngeal Tuberculosis.

626. DE WEGLENSKI, W. (*Annales des malades, de l'Oreille du Lar., du Nez et du Phar.*, No. 10, October, 1898.) A form for the filling in of facts in an examination of tubercular laryngitis is given.

Hollinger

A Case of Sigmatic Dyslalia.

627. GRANT, DUNDAS. (*Journal of Laryng., Rhinology and Otology* July, 1898.) The patient was unable to produce the hissing sound of the letter "S" for which she substituted the guttural "K." A systematic course of hissing exercises has somewhat improved the condition.

Loeb.

Two Cases of Ludwig's Angina or Sublingual Phlegmon.

628. CASSELBERRY, W. E. (*Journal of Laryng., Rhinology and Otology*, June, 1898.) CASE I. The patient, a man aet 30, had suffered for three days from an intense pharyngitis with high fever, depression and signs of beginning peritonsillar abscess. The velum was oedematous, the uvula swollen and elongated, the tonsils small and without exudate.

A puncture was followed by the evacuation of pus and the pharyngeal feature of the case terminated. Five days later a swelling appeared in the front of the mouth beneath the tongue, which was crowded upward against the palate, Respiration was slightly stertorous, deglutition painful, swelling bilateral and sublingual induration "woodenlike." Two exploratory punctures were made without finding pus. He became some better but ten days later symptoms of edema of the larynx and lungs appeared, and the patient died without any discovery of pus being made.

CASE II. Mrs. C, aet 60, was suddenly attacked with an

acute inflammation of the floor of the mouth, which rapidly increased, forcing the tongue upward and backward, so that the mouth could be neither opened nor shut, deglutition was impossible, and respiration dangerously impeded. Within a week fluctuation appeared in the vicinity of the right sublingual salivary gland, which required the merest puncture to evacuate the pus. The urgent symptoms rapidly subsided, although the patient made a tardy recovery.

Loeb.

A Case of Agmination of Secretion on the Vocal Cords at the Seat of Election of Singers' Nodules.

629. GRANT, DUNDAS. (*Journat f Laryngology, Rhinology and Otology*, July, 1898.) A Singer, aet twenty-one, complained of want of timbre, hoarseness and discomfort in the upper part of the throat after singing for a short time. A thick secretion of almost milky whiteness, was found at the junction of the anterior with the middle thirds of the vocal bands. The secretion greatly diminished after relief was afforded to abnormal nasal conditions.

Loeb.

V.—MISCELLANEOUS; THYROID GLAND; ESOPHAGUS, ETC.

A Few Considerations Regarding Climatic Changes and Pulmonary Tuberculosis.

630. BONNEY. (*Jouor. Amer. Med. Assn.*, Oct. 15, 1898.) The warmest advocates of the serum therapy recognize the fact that this treatment is limited chiefly to early cases. It is precisely such cases that have been demonstrated to respond more readily to climatic influences.

Scheppegegrell.

Partial Thyroidectomy in Eight Cases of Graves' Disease.

631. BOOTH, J. A. (*Medical Record*, Aug. 13, 1898.) Of eight cases operated, five were cured and one died. In the successful cases, the goitre first diminished, next the nervous symptoms disappeared, then the pulse-rate and vaso-motor phenomena improved, and the exophthalmos last of all.

Pathologic and clinical evidence is in support of the view

that the symptom complex is the expression of a primary neurosis multiplied by a secondary glandular intoxication. As the ultimate cause of disease of the gland is still a matter of speculation, and as a mortality of 7 per cent. after operation is reported, this cannot be highly recommended as a routine plan of treatment. Sudden death may occur in the course of or soon after the operation, and has not as yet received a satisfactory explanation.

Scheppegrell.

Exercise in Exophthalmic Goitre.

632. COE, H. W. (*Western Medical Review*, July, 1898.) As judicious exercise and resistance movements have been found useful in heart disease, the author has also applied this in exophthalmic goitre. In the case reported, there was exophthalmus, enlargement of the left lobe of the thyroid, and tachycardia, the symptoms rapidly ameliorating under this treatment. *Scheppegrell.*

Prophylaxis in Nose and Throat Diseases.

633. COULTER, J. H. (*Jour. Amer. Med. Assn.*, Oct. 29, 1898.) An interesting article on prophylaxis in nose and throat diseases by correcting nose and throat abnormalities and instituting hygienic measures. *Scheppegrell.*

The Surgical Engine and its Use in Bone Surgery.

634. CRYER, M. H. (*Medical News*, January, 1898.) A résumé of the advantages of the surgical engine in bone operations, with a description of a special apparatus. The importance of having the velocity of the cutting tool of from four to six thousand revolutions per minute is especially referred to.

[The velocity is an important point. Many of the motors, especially those with dynamo combination for operating the electro-cautery and electric light, have a speed far below the requirements of skillful surgical work, which probably accounts for the dissatisfaction frequently complained of in their use. *Scheppegrell.*] *Scheppegrell.*

The Modern Treatment of Tuberculosis.

635. DENISON, C. (*Jour. Amer. Med. Assn.*, Sept. 24, 1898.) A tuberculosis treatment-table; approximate estimate of results:

Proportion of benefits due to	Range of per cent.	Average per cent.
1. Climate and change, involving mental influence	15 to 45	30
2. Exercise and outdoor life	10 to 20	15
3. Good feeding, special dieting and attention to alimentary canal	10 to 20	15
4. Medical supervision and medical treatment	5 to 25	15
5. Inhaling, local medication and surgical interference	5 to 25	15
6. Specific medication, based upon antitoxin treatment	0 to 20	10
Totals per cent	45 to 155	100

The adaptation of all methods to the needs of a given case is a preferable plan. The seasonable change of residence to a well-selected high-altitude climate, with its dryness, sunshine, possibilities of outdoor life, and its stimulating qualities, gives the best possible resistance to the advancement of consumption. Exercise is most essential and necessary to promote both cell activity and the needed mechanical distention of the air-cells. Local treatment and proper inhaling methods bear important relation to exercise, cell stimulation and the climatic effect by the high altitude method. It is a mistake to overwhelm the body with frequent injections of undetermined animal serum, thereby producing either a severe reaction or a possible cumulative toxemia.

Scheppegrell.

The Use of Animal Toxins in the Treatment of Inoperable Malignant Tumors.

636. FOWLER, G. R. (*Amer. Jour. of Med. Sciences*, August, 1898.) After a careful review of the literature of the subject on the use of *stereptococcus erysipelatis* and the mixed toxins of *streptococcus erysipelatis* and the *bacillus prodigiosus*, the author reports a case in his own experience treated by the mixed toxins.

In a patient who had been operated upon by external pharyngectomy for a melano-sarcoma of the left tonsil and fauces, a recurrence developed four weeks later and further operative interference being deemed inadvisable, treatment by injections of Coley's fluid was instituted. A very decided reaction followed each injection, which was made deeply into the left arm. Massage was employed after each injection so as to disseminate the injected ma-

terial rapidly. A slight chill followed each injection and a rise of temperature to 103° F.

At the end of three days, the new growth in the lateral pharyngeal wall had disappeared, and the frequency of the injections were lessened. Three months afterward no trace of the disease could be found. Two years later a recurrence took place, and antitoxin treatment was again recommended, but the patient failed to report to the hospital. He died afterward from extensive sarcomatous inflammation of the structures of the neck on the side corresponding with the original disease of the tonsil.

Scheppegrell.

Solution of Gelatin as a Hemostatic.

637. GARCIA (*Gazette of Medica de Mexico*, May 1, 1898.), after exhaustive experiments to confirm those of Dastre and Floresco, thinks that a sterilized 5 per cent. to 10 per cent. solution of gelatin in water (or better still in a decinormal salt solution) is of the greatest value, and he has used it many times to stop an epistaxis that otherwise would require complete plugging before it yielded. He submits the following conclusions:

1. It is a hemostatic of the first order.
2. It coagulates blood from a wounded vessel, which coagulation is very rapidly organized.
3. It thereby facilitates primary union.
4. It is applicable in all hemorrhages where it can be brought directly into contact with the bleeding point. This holds true of epistaxis, cutaneous wounds and metrorrhagia.

Hale.

Painful Dysphagia Evidence of Syphilis.

638. GAREL. (*Semaine Med.*, July 6, 1898.) Persistent dysphagia should always be considered suggestive of syphilis. It is frequently the first and only symptom recognized by the patient. The pain vanishes after 48 hours treatment with potassium iodide unless it is due to incipient cancer or tuberculosis of the throat, which can be thus differentiated.

Scheppegrell.

A Note on Concurrent Carcinoma and Tuberculosis.

639. HAMILTON, W. F. (*Montreal Med. Jour.*, July, 1898.) While there is a degree of exclusiveness between the diathesis of carcinoma and tuberculosis, recent sta-

tistics do not show this to be so antagonistic as Rokitsky's teachings would indicate. In the case reported, the autopsy showed extensive carcinoma of the esophagus with tuberculosis of the right lung and pleura. The pathologic report of the Royal Victoria Hospital up to date shows three other cases of concurrent cancer and tuberculosis:

CASE 1. Male, aged 76. Carcinoma of the tongue; bilateral lobar pneumonia, chronic interstitial nephritis; left pulmonary tuberculosis; rheumatoid arthritis.

CASE 2. Male, aged 85. Primary carcinoma of the urinary bladder; secondary carcinoma of the prostate and urethra; chronic interstitial nephritis; indurative right pneumonia with progressive apical tuberculosis; left apical obsolescent tuberculosis.

CASE 3. Female, aged 59. Adenocarcinoma of the esophagus; stricture (gastric operation case); tuberculosis of the right apex, caseous peribronchial glands; chronic indurated pneumonia. *Scheppegrell.*

Antistreptococcic Serum.

640. HILL, W. B. (*Jour. Amer. Med. Assn.*, October 1, 1898.) Any disease which is caused by streptococcic infection is certainly benefited, if not cured, by antistreptococci serum. Where the serum is reasonably fresh and hermetically sealed, having been properly prepared and inspected, it is never an element of danger, and may be used with impunity. Further investigations, however, are needed in this direction. *Scheppegrell.*

Clinical Facts.

641. KOCH PAUL. (*Annales des Malad. del Oreille du Nez du Lar et du Phar.* No. 9, (September, 1898.) An old rag peddler came to the office drunk. He complained of a foreign body in his oesophagus. An English probe could be introduced as far as the lower third of the oesophagus. The doctor tried to push the foreign body down into the stomach and apparently succeeded, but could withdraw the probe only with difficulty. When he finally succeeded, a piece of ham was hanging on the probe. It had worked like a cork-screw.

(2) An otherwise healthy man of 60, after influenza, was suffering from attacks of dyspnoea. They were espe-

cially bad during the examinations, so much so, that once a very hasty tracheotomy had to be made. The vocal cords were in the position of phonation, and the author draws the attention to the controversy now going on between Krause in Berlin and Vernon in London, whether this position was the result of a spasm or paralysis.

(3) A drunkard during a nightmare bit his tongue so that it was full of ulcerating impressions of the teeth.

(4) Two children suffered from coryza, the nature of which was not recognized till one child died, and the other was cured after anti-toxin injections.

Holinger.

A Case of Thyroidectomy.

642. KRUSEN, W. (*Therapeutic Gazette*, August 15, 1898.) A woman, aged 53, had suffered for three years from gradual enlargement of the right lobe of the thyroid gland, which reached the size of an orange. It had caused various disturbances, such as venous congestion of the face, faintness, insomnia, hoarseness, and an irritating cough, evidently due to pressure on the recurrent laryngeal nerve.

The gland was successfully enucleated. During the operation there was interference with the respiration produced by the tugging on the trachea during the enucleation.

For forty-eight hours afterward the pulse was weak and quite rapid. This operation is sufficiently dangerous to make surgical interference a subject of earnest consideration.

Scheppepegrell.

Obstruction of the Oesophagus.

643. (*Medical Record*, July 23, 1898.) The patient has suffered from infancy from a contracted oesophagus, which resulted from swallowing concentrated lye. Fragments of boiled potatoes had become lodged in the oesophagus, this preventing the passage of even water through the canal. Teaspoonful doses of peroxide of hydrogen were administered, and the effervescence following its administration successfully resulted in the dislodgment of the obstruction.

Scheppepegrell.

Hygiene vs. Drugs in the Treatment of Pulmonary Tuberculosis.

644. MINOR, C. L. (*Journ. Amer. Med. Assn.*, October 29, 1898.) Air and food are the drugs to which we can

always trust: they will never deceive us. It would be well to throw away two-thirds of our medicine bottles, and use the remaining third less frequently, carrying out a hygienic plan of life, stimulating the appetite by nature's appetizer—air and exercise—which are alone permanent in their results, and which are as superior to gentian or quassia as sunlight is to darkness.

Scheppegrell.

Koenig's Symptom in Meningitis.

645. NETTER, DR. (*Berl. Klin. Woch.*, No. 40, Oct. 3, 1898.) D. Netter looked for this symptom in many cases of meningitis. It consists in the impossibility of completely stretching the gently flexed legs of the patient when in a sitting posture, while the limbs are fully relaxed when he is lying down. It was lacking but five times in forty-six cases. It has not been observed in other diseases.

Morgenthau.

The Tuberculin Test in Cervical Adenitis.

646. OTIS, E. O. (*Medical News*, July, 1898.) A one-per-cent solution of Koch's original tuberculin was used as the test, one to five miligrams being the most satisfactory dose. If from six to twenty-four hours after the injection, there occurred weakness, sensations of heat and cold, general malaise, nausea, anorexia, severe headache, pain in the back and limbs, a feeling as if they had the "grippe;" and these symptoms were sharply defined both in their beginning and ending, a reaction was considered to have occurred.

Of twenty-nine cases tested, there were eighteen positive reactions and two doubtful ones. The majority of the reactions occurred in cases in which the enlarged glands had existed six months or more. This corresponds with the general opinion that tuberculous cervical glands are of slow growth and long duration. It was found that there was no appreciable danger when the diagnostic agent was applied in a moderate dose.

Scheppegrell.

External Oesophagotomy for Impacted Foreign Body.

647. POWERS, C. A. (*Boston Med. and Surg. Journ.*, July, 1898.) In the first case a large bone became fixed in the oesophagus of a man of 50 years. All attempts to remove it by the natural canal failing, an external oesoph-

agotomy was performed, and a triangular bone of one-fourth inch in its greatest length was removed.

In the second case, a child two and a half years, a toy wheel had become impacted in the throat. Fluoroscopic examination revealed the wheel just above and behind the episternal notch. It was removed by external oesophagotomy.
Scheppegrell.

Antitubercle Serum (Paquin) in Tuberculosis.

648. PRIOLEAU, W. H. (*Journ. Amer. Med. Assn.*, September 1898.) The antitubercle serum is nearer a specific for all kinds of tuberculosis than any other treatment. It is most valuable in pure unmixed tuberculosis; that is, tuberculosis uncomplicated with some infection. It should be used in the pretuberculous or incipient stage, and in the beginning of the second stage. It is of little benefit where the daily rise of temperature is to 102 degrees F. Given by the rectum, the results are equally as good as when given hyperdermically, and never causes unpleasant symptoms, which are occasionally produced when the serum is used hyperdermically.
Scheppegrell.

Life History of the Bacillus Tuberculosis in Its Relations to the Treatment by Tuberculin.

649. REYBURN, R. (*Journ. Amer. Med. Assn.*, October 1, 1898.) The author believes that the investigators of the bacillus of tuberculosis are working in a wrong direction. Tuberculosis has always been cured in one way, viz.: by improving the hygiene and the general health, and how the injection into the system of a concentrated extract of the poisonous materials elaborated by the bacilli can do this, he is unable to discover. He believes that little hope of a cure of tuberculosis can be expected by this means.
Scheppegrell.

The Serum Treatment of Pulmonary Tuberculosis.

650. RICHARDS, G. L. (*Atlantic Med. Weekly*, August 6, 1898. The cases were treated with Mulford's serum. The author believes that in the main the results will be disappointing, especially in that large class of cases that must work while under treatment.
Scheppegrell.

The Adirondacks in Winter for Tuberculous Patients.

651. SNOW, S. F. (*Buffalo Med. Journ.*, April, 1898.)

There are locations in the Adirondack Mountains where many tuberculous patients may find the climatic and physical environments required. Patients do equally as well in fall and winter, and gain more than in summer months. The article concludes with a report of several cases, which were markedly benefited by the climate of these mountains.

Scheppegrell.

Affections of the Upper Air Passages in Women with Uterine Disease.

652. STRAIGHT, H. S. (*Cleveland Journ. of Med.*, March, 1898. Uterine disease in women is a predisposing factor in affections of the upper air-passages, and unless this is corrected, cure of the latter is improbable. Every one who limits himself to a specialty, should first have extensive experience in general medicine, in order to appreciate the influence of diseases of other parts of the body on the upper respiratory passages.

Scheppegrell.

Three Cases of Trifacial Neuralgia of Dental Origin, Unaccompanied by Toothache.

653. THORNE, W. M. (*Occidental Med. Times*, May, 1898.) In all cases of facial neuralgias, the teeth should be thoroughly examined, and many obscure and unexplained cases would be cleared up. This is illustrated by the report of three cases.

Scheppegrell.

Climatic vs. Serum Treatment of Pulmonary Tuberculosis.

654. WAXHAM, F. E. (*Journ. Amer. Med. Assn.*, Oct. 15, 1898. Until we have more light to guide us, and are more fully convinced of the utility of the serum treatment of tuberculosis, we should take advantage of climatic treatment which has been fully tested and seldom found wanting.

Scheppegrell.

The Teaching of Singing to Deaf-Mute Children who Have Preserved a Part of Hearing.

655. X. (*Rev. hebdom., de Laryngol. d'Otol., et de Rhinol.*, Sept. 10, 1898, No. 37.) The teaching of singing to deaf-mute children who have preserved a part of hearing. Its use for orthophonia. General considerations about the main causes which make the speech of deaf-mutes imperfect and about the means of improvement.

Here are the conclusions derived from this paper:

1. The oral method of instruction of deaf-mute children teaches them to speak but their speech is too monotonous and disagreeable.

2. The causes of this are due partially to idiotism or to diseases of the naso-pharynx, partially to faults of the methods of teaching.

3. Idiots have to be treated according to Seguin-Bourneville. The others according to general surgical methods.

4. The teaching has been modified according to the intelligence and the standing of the child whether it is advanced or a beginner.

5. The author with advanced scholars tried to study some singing and was in a few months gratified with very encouraging results.

Holinger.

REPORT OF THE FOURTH ANNUAL MEETING OF
THE AMERICAN LARYNGOLOGICAL, RHINO-
LOGICAL AND OTOLOGICAL SOCIETY.

HELD AT PITTSBURG, PA., MAY, 1898.

Address of the President, W. H. Daly, M. D., Pittsburg, Pennsylvania.

GENTLEMEN: I have much honor and pleasure in bidding you a hearty welcome to our city. I am sure you will all experience an agreeable surprise, on this your first visit here since the just reputation of Pittsburg being a vast manufacturing centre, has also made it to be regarded, as only remarkable for that distinction, but you will, notwithstanding, also find other things of vast proportions, that will appeal to your higher esthetic senses.

Here we have hundreds of acres of public parks, just now presenting an unexcelled vernal beauty of hill, and dale, and vista. The public conservatory of plants, a present from a generous citizen, Henry Phipps, is equal to the best in the country; and Carnegie Music Hall, Library and Museum, a gift of the noble Pittsburger whose name it bears, is in keeping with the most liberal expenditure, and advanced taste of this wonderful age. Without overstepping the bounds of modesty, we may say Pittsburg, therefore, like good old wine, "needs no bush," and while you have brought us rich presents of scientific value in learned lore, as indicated in the charming programme before us reaching as it does from our distinguished confreres Lennox Browne of London, to Massei, Naples, with other learned lights in our profession from the great cities of our own land. We, with grateful hearts, your Pittsburg members, through me, thank you deeply for having honored us. We are twice honored, in fact as well as in sentiment, for it was in this city, two years ago, that the older national organization of laryngologists, which we all revere, for its high scientific work, met, with just the same number of papers to be read and discussed, viz.: thirty-four, and also, with your present

speaker as its president. Truly Pittsburg has been honored, and your speaker placed under a debt of gratitude, for the kindest partiality, and consideration, that any man can ever receive from distinguished confreres, whose names are household words, in all the higher planes of thought, in laryngology, rhinology, and otology. What more can I say, than to express a personal pride to you in being, as you are well aware of, unsolicited on my part, called to the office of your president? This honor is all the more touching, since the membership is largely made up of the young men, whose names are not only the glory and pride of laryngology, but whose writings and discussions are read with avidity, that speaks without saying it, that they are of the highest scientific and analytical value.

Now, gentlemen, if I have seemed to speak to you with much freedom of commendation, I can only say as one of the older laryngologists, "Yet we are only a trifle older, but not better soldiers." and we are older and younger as one—proud and determined to carry onward our lines of advance, wherever we are placed, so that the coming unfolding of the twentieth century, will find that we, too, have a right to our names high upon the roll of honor, for work well done, for studies well prosecuted, and for solid results in the preservation of human health, even though our work be done, unheralded by the blare of trumpets, or without the knowledge of the great outside unthinking world, who look alas, too often, upon the Medical Man, as someone whose aid is sought to enable the patient to indulge in habits, excesses, and exposures, not meant for thinking human beings; but if we have any doubt as to whether modest scientific labor is unrewarded, let us all remember that dear good man, Dr. Wilhelm Meyer, of Copenhagen, Denmark, whose close friendship it was my esteemed privilege to enjoy through many years previous to his death. His life was pure, his mind was that of a deep thinker, yet his manner as gentle as a child's.

I once heard Sir Morell Mackenzie say at a banquet of laryngologists in Denmark, that before Newton lived apples had fallen to the ground, and before Wilhem Meyer lived pharyngeal adenoids had existed, but the significance of these facts awaiting an interpretation by two great minds.

Wilhelm Meyer literally died in the harness, from pneumonia, contracted from exposure in the damp tombs and crypts of Italy, where he had gone in his old age to study afresh among the tombs of the ancients, the evidence of pharyngeal adenoids as depicted by the separated lips of the sculptured images of the dead of past ages.

A letter just received from his aged widow, now residing in Venice, is filled with grateful appreciation of the spontaneous out-flow of money from the profession, of the greater civilized nations, which culminated in the erection of a monument to the memory of Wilhelm Meyer in his native city. I am proud for America, that her sons in medicine contributed most nobly, and I am also happy that I, as president of the older national body of laryngologists, set the work on foot, by appointing a large and able committee, in every city in America, headed by Dr. D. B. Delavan of New York, Dr. M. B. Ward being sub-chairman of the Pittsburgh committee. They more than fulfilled the best results that I promised for them to Felix Semon, and others in London, and Denmark, who had there, this sacred office in hand. Dr. Delavan's labors were considerable, covering, as they did, our entire country, and they were well and cheerfully done, as he, too, was a loving friend of the dead master.

The work in our several special lines has been so vast and efficient in the past year, that it is quite impossible for me to touch upon it in even a passing comment. A mere index of it would take hours to read, and I forbear owing to the mass of excellent work now before us. America, however, as usual has a large share of the solid practical advance to her credit.

While we meet in the peaceful avocation of science, we are so small an integral part of a vast and mighty nation, that we scarcely see anything here to remind us of the clash, pomp, and circumstances of grim war. Yet I am sure that others here, possibly all, having proud patriotic motives like myself, have placed themselves on call from their country, should they be needed for the good of the service and the nation.

The speaker, being probably the oldest here, had experience from the first to the last of the war for the Union, and knows only too well its exposures and trials, but

should he or any of us be needed, we are ready to go and do our duty wherever we may be of the most efficient service to our country's flag and the cause of freedom. In the meantime, while others of our countrymen are now carrying the banner, and impatiently awaiting the order to forward! march! let us improve our qualifications, by earnestly listening to the bright scientific essays that are to be read and discussed, and I now to that end declare this our Fourth Annual Congress open, and bid you Godspeed and much mental benefit.

Exhibition of Cases.—Dr. Charles W. Richardson, Washington, D. C.—I have a case that came to me about three years ago, of affection of the cuticular surface of the auricle. This disease affected only the cuticular surface, then there was complete destruction of the surface of the auricle. The gentleman who contracted the disease was originally on the Guatemalan-Mexican Boundary Commission, and he told me that this disease was very prevalent in the province of Petan in Guatemala, and affects only the auricle. The case excited my curiosity, and I had a bacteriological examination made of the diseased tissue, and its specific bacillus was found the bacillus that caused this disease. It is similar to the disease known as bouton de diable, which exists in India and in the Nile region, but in these regions it is not limited to any particular part of the body. It was very difficult for me to gain much information about this disease. I appealed to the Guatemalan minister, and he put on foot an investigation concerning this disease, but the doctors, even in this region, know very little about it. My patient returned to Guatemala and promised to send me some information. I will show one of the photographs of one of the characteristic lesions after the disease has produced complete destruction of the cuticular surface of the auricle. It is a peculiar fact that this disease in this region only affects the cuticular surface of the auricle. I arrested the progress of the disease in this gentleman with the use of bichloride of mercury, which kills the bacillus. The cuticular surface of the auricle is now in normal condition. I saw him a week ago (photograph exhibited). Dr. Theobald Smith, late of Washington, now of Harvard Medical School, made the

examination for me, and I received from him a few days ago a letter in which he states that he has slides of tissue and drawings of bacillus.

I report the case briefly at the present time, and will publish the same in full later. I report the case as a matter of original research, the bacillus of this disease never having been found before.

Report of Rhinolith Removed, by Dr. J. F. Hill, Waterville, Me. (Abstract.)

For twenty-five years, a female patient, aged sixty years at time of examination, had been afflicted with a profuse offensive discharge from the anterior and posterior nares. She had been treated for what was supposed to be nasal catarrh, and was informed that her disease was incurable. Symptoms of aural disturbance appeared, together with epiphora of right eye and epistaxis. Severe headache of daily occurrence was a prominent manifestation.

On examination the author found the right nasal passage occluded with granulation tissue, and what appeared to be a grayish substance nearly filling the posterior nares. The foreign element was removed under ether anesthesia with an ordinary lithotrite. It proved to be a rhinolith weighing 275 grains.

The inferior and middle turbinates were much wasted and ulcerated. Antiseptic after-treatment resulted in a complete cure of all symptoms.

Discussion.—Dr. John O. Roe, Rochester, N. Y.:—Several years ago I published a case in which I removed a rhinolith, weighing about three drachms. The patient, a young lady about eighteen years of age, had had a fetid discharge from the right nostril for about six years. On exploring the nose for the cause of this discharge, I found it completely obstructed by what appeared to be a movable body. On dilating the nostril and passing a slender curved instrument behind this substance, I succeeded in removing it unbroken. It occupied the central portion of the nostril about one inch from the anterior meatus. On examination it was found to be composed largely of phosphate of lime.

An interesting point in regard to this rhinolith was that a section through the center showed that the nucleus was

a pledget of cotton, which doubtless had been introduced into the nostril several years before.

Dr. Dwight L. Hubbard:—Dr. Roe's case reminds me of one of a school teacher who came to me suffering from nasal stenosis. An examination revealed the presence of a rhinolith about one-half inch wide and two lines thick. I removed it without difficulty. The nucleus was a pledget of cotton which had been placed there some five years previous by a physician with whom she had been treating for some catarrhal difficulty, and never removed.

Dr. Price Brown, Toronto:—I had a case some years ago from which I removed an exceedingly large rhinolith. Eighteen years previously, the patient had received a severe blow on the nose, fracturing the nasal process of the left superior maxillary bone. Ever after she had nasal trouble. On examination, I found a rhinolith which was so large that it was impossible to remove it entire. It had to be broken up into fragment. I imagined the rhinolith to be formed around a small piece of bone left in the cavity after the original fracture, but upon a careful examination, I found that the nucleus was a little round button.

Dr. L. C. Cline, Indianapolis, Ind.:—I had a case of rhinolith in a boy some eight years of age, who was referred to me for some catarrhal trouble. On examination I found a rhinolith perhaps three-quarters of an inch in length, and a little over half an inch wide, and probably about three lines in thickness. I removed it with a pair of forceps, and in the rhinolith I found a piece of rubber tube that I supposed to be the nucleus. One other case I operated on was a young man about 19 years of age. The rhinolith was over three-quarters of an inch in length, and so large that I had to break it up in pieces with a stout pair of forceps before I could remove it.

Dysphonia—Relief with the Use of the Galvanic Current. By T. C. Christy, M. D., Pittsburg, Pa. (Abstract.)

Dysphonia, or phonasthenia, is a relative term; a condition arising from the acute and chronic affections of the larynx and trachea, generally associated with cough or pain. The observer thoroughly familiar with the natural healthy mucous membrane protecting the upper respira-

tory tract, should study carefully the inter-arytenoid space, the glottis and subglottic space, with regard to the changes induced by the severe inflammation of these parts. The three classical cough centers are the inter-arytenoid space, the posterior wall of the larynx, and the spur at the bifurcation of the trachea.

Pain is referred to the larynx proper, and is due to the forcing of the air through the narrow glottis from below—it being an admitted fact that the inferior surfaces of the true cords are more exquisitely sensitive than the superior surface.

The subglottic space is the narrowest part of the larynx, and all pathological changes occurring in this space tend to stenosis, and so alter the relative proportions as to modify the resonance of the voice and interfere with phonation and respiration.

The two symptoms characteristic of laryngeal inflammation are dysphonia by intact true cords, and the short, frequent cough without any secretion, which is painful to hear and witness. Involvement of the trachea causes an additional symptom of weight or pressure in the windpipe, with pain and distress over the episternal notch; a constant symptom radiating down the central part of the sternum, and frequently to one or both sides of the upper chest.

Treatment is sought for relief of pain, cough and dysphonia. The voice may be quite clear in the morning, grows husky and raucous with the approach of evening, when the patient speaks with increased effort, or is aphonic.

The treatment requiring surgical measures, such as intubation, tracheotomy, and removal of growths, were not considered.

The dysphonia in professional voice users is of frequent occurrence, and is an interesting study; for its relief the writer employs the constant current, the results attending are noted in a series of cases with these conclusions:

The galvanic current, as a curative agent in laryngeal and tracheal affections, is—

- (a) Easy of application.
- (b) Soothing and agreeable to the patient.

- (c) Relieves the congestion, pain and irritation.
- (d) Does not excite pain or spasm of the glottis or trachea.
- (e) Relieves the swollen and lymphatic glands.
- (f) Cures more promptly than any other agent.
- (g) Patients recognize its value and return regularly for its application.

Discussion.—Dr. Robert Levy, Denver, Colo.: I think the Society owes a vote of thanks to Dr. Christy for his very excellent paper. It is not my purpose to say much about the treatment of dysphonia in general, but just a word in regard to the beneficial effects of the galvanic current in dysphonia, particularly in the case of the theatrical profession, in which case quick results must be effected. We must produce immediate results to satisfy our patients. I wish to call particular attention to that form of huskiness, or hoarseness, which often occurs early in cases of tuberculosis. I contend that this symptom is of great value from a diagnostic point of view. Anemia of the larynx and a slight huskiness of the voice, in connection with the pulmonary symptom, is a diagnostic symptom of exceeding value. I think, also, the hoarseness or huskiness of incipient tuberculosis may be caused by or dependent upon a slight infiltration of the arytenoid, and this also has a diagnostic value, but of course we must not conclude that this infiltration is necessarily tubercular, and it must be considered in connection with other tubercular symptoms. It is rare that we find patients, or even healthy individuals, whose larynges do not show some infiltration from chronic catarrhal laryngitis. The huskiness dependent upon this condition may not be noticeable to the patient, unless a singer or an actor, but in all cases of suspected tuberculosis, the physician should not let this diagnostic symptom be lost sight of.

Dr. E. E. Holt, Portland, Me.: I think the discussion is in regard to the continuous current. As the Doctor was reading his paper I recalled a patient I had some time ago, a lady, who had difficulty with the voice, due to an enlargement of the thyroid gland. She consulted me because she was not able to use her eyes. I examined her eyes very carefully, but could find no abnormality there,

but I applied the continuous current. She received so much benefit from it that she insisted upon returning, and to my surprise, the enlargement of the thyroid gland began to diminish. Although she had been under the treatment of competent physicians for that trouble, she insisted upon returning to me for my treatment. I only mentioned this to show the value of the continuous current. I find it useful not only in preachers and those who use their voice, but also in difficulties of the eyes. I have been able to produce benefits by the use of the current, which I have not been able to produce in any other way.

Modern Possibilities in Chronic Catarrhal Deafness. By Sargent F. Snow, Syracuse, N. Y. (Abstract.)

After reporting in detail three of his cases that gave an history of from 10 to 21 years' partial deafness, and had been under his care from three to six years, showing a gain in hearing power of from 16 to 276 inches, Dr. Snow went on in part to say:—

In these chronic cases we are often taught that if, after inflation, the hearing be improved, or after a course of treatment by generally accepted methods for six weeks, the patient shows no material benefit, the case is hopeless, and it is wrong to encourage him to continue longer. With this point we could take issue, for, in most chronic cases of catarrhal deafness, a six week course of treatment, such as cleansing the nasal passages by an alkaline spray, inflation of the ear, or the introduction of medicated vapors through the Eustachian catheter, will not, to much extent, improve the hearing power; whereas, a thorough removal of pathological conditions within the nose and adjacent cavities, followed persistently from month to month, and if necessary from year to year, by proper stimulating vapors through the Eustachian tube to the middle ear will, in a good percentage of cases, tone up the parts and bring, if not a complete cure, happy results.

The question does not seem to be so much whether we have an atrophic or hypertrophic condition, *but did* the deafness primarily occur as a catarrhal inflammation, or is there so much fixation in the ossicles as to *preclude* a

possibility of relief except through operative procedures?

Many practitioners are opposed to the treatment of deafness in particular and catarrhal affections in general.

This influence is felt in the families, and in those cases where prompt, energetic measures are imperative, may become pernicious. Their opposition is honest, and comes from the unfavorable prognosis given by authorities for whom they have great respect. We *maintain* that the *conclusions* of these *authorities were based* on experience obtained under auspices much less favorable than present: their *every effort* on the ear was hampered by recurring catarrhal inflammations which to-day, we can in a great measure control.

Modern Possibilities in Chronic Catarrhal Deafness.—

Discussion.—Dr. E. E. Holt, Portland, Me.:—I think the Society owes a vote of thanks to Dr. Snow for his paper, as this subject is not generally considered a very inviting one upon which to write. In taking into consideration whether or not this class of patients can be benefitted by treatment, I am guided usually by whether or not they are made worse by a cold. If a case of chronic catarrhal inflammation of the middle ear is not affected by cold in the head there is, in my experience, but little chance of improvement by treatment. There is a class of patients that offer no encouragement, and in deciding upon these cases we must take into consideration the family history and hereditary tendencies. I have in my mind a family living in my city, all of them became deaf, and they do not suffer from the ordinary symptoms of catarrh, and any member of this family is not made worse in hearing by a cold in the head. I think Dr. Snow's suggestions are very valuable, because most physicians discourage any attempt to benefit patients affected with catarrhal deafness, simply because some of these patients are known to be incurable. I think in the light of modern treatment, that many of these cases can be benefitted, can be made to hear better. I did not notice that the Doctor said anything about galvanism in his paper. I think if he adds that to his treatment he will be able to help some patients whom he would not be able to improve in any other way.

Dr. James F. McKernon, New York, N. Y.: I would

like to ask the Doctor about the conditions of the tube previous to the beginning of the treatment. Was there any stenosis whatever?

Dr. S. F. Snow, Syracuse, N. Y.: There was no permanent protracted stenosis in either one of these cases, but I have had several other cases where there was a good deal of stenosis, and I had to stretch them. These particular cases had no fibrous stenosis. There was almost complete occlusion for a time in the case of the elderly lady, and in the case of the young lady one tube was occluded for a time, although it finally let up under treatment.

Dr. Max Thorner, Cincinnati:—I think Dr. Snow has been unusually successful in the treatment of his cases; I am sorry to say that my experience is not so good. It may be that I have not continued my treatment of cases long enough, not so long as he has. I believe, however, we have to differentiate between the different kind of cases. If we have obstructions of the nose in these cases, with the nasopharynx and the Eustachian tubes congested, or their mucosa thickened, we are very likely to improve our patients by removing the obstruction, and by treating the chronic pharyngitis and salpingitis. The judicious use of the probe in the tube is often of benefit in such cases, but patience is required. If we do not succeed at first we must try again. Good results are also liable to result from the faithful employment of massage of the Eustachian tube. But there is a class of cases which does not offer so much hope to the patients; cases in which an inflammatory condition has run its course, resulting in an atrophic condition of the walls of the Eustachian tube, where the drum head is retracted, where the chain of ossicles is ankylosed, in short where sclerosis of the middle ear exists. I do not think we can expect very good results from treatment in these cases. It is my experience that these cases of gradual, progressive deafness offer a very poor prognosis. However, I have gleaned some information from Dr. Snow's paper, which I shall be pleased to try in practice.

Dr. Charles W. Richardson, Washington, D. C.—I was pleased to hear Dr. Thorner's remarks on this paper. I think many of us have had cases of gradual, progressive deafness which go on from bad to worse, in spite of all

that we can do for them, in spite of any treatment which we can institute. These are cases of the sclerotic type, attended with sclerosis of the mucosa, ankylosis, fixation of the stapes and changes in the round and oval window. No doubt all of us have met with these cases, where our best efforts are of no avail. We have, of course, many remedies to alleviate, if not to cure, these cases, but, in my experience, it has been very hard to hold patients under treatment for any length of time if some good results are not produced to give them courage, more especially when the Doctor himself, cannot offer much hope from his treatment. I have seen in some of these cases where iodine and camphor vapor has been employed, a marked increase in all their symptoms. I believe that in certain cases of inflammation of the tube and of the middle ear cavity, the solution Dr. Snow speaks of, and the treatment which he outlines as of value, I think it extremely hazardous to attempt the same line of treatment in the sclerotic cases. I have seen a number of cases where this treatment has been harmful. Of course, as a rule, we only hear of cases where our treatment does good, we do not generally hear of the cases where harm is done, in some cases I have found it decidedly harmful.

Dr. S. F. Snow, Syracuse, N. Y.: I thank you very much for the kindly way in which you received my paper. One point which I wish to emphasize is the necessity of doing thorough nasal work in cases of catarrhal deafness. I am more convinced every day that if we do our nasal work thoroughly, good results will come in most cases of disease of the middle cavity, though we must not expect too much the first three or four months after operative work. If we do not cure the nasal trouble, our treatment of the ear cavity will be of little avail—our best efforts will only bring temporary improvement. Dr. Richardson speaks of the increase of the tympanitis and in the deafness which sometimes follows the use of camphor and iodine vapor. I have noticed this, but am impressed that it does no permanent harm, the counter irritant effect actually toning up the membranes which soon become tolerant, and the patient is in better shape than when started.

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Hemorrhage from the Lower Throat, or Hemorrhage from the Larynx and Lingual Tonsil.* Discussion. Howard S. Straight, M. D., Cleveland, Ohio.

Dr. Chas. W. Richardson, Washington, D. C.: I have been very much interested in Dr. Straight's paper; very much interested because I had thought last winter of reporting a series of cases that sound almost like Dr. Straight's cases. I had not thought of reporting them as laryngeal or post-nasal hemorrhages so much as tubercular hemorrhages. These cases of Dr. Straight's have been interesting to me also, because for periods of two or three years patients have been under my observation who have had copious hemorrhages from the larynx or pharynx, although examination would fail to show the exact site of the hemorrhage, and they were supposed to be laryngeal or post-nasal simply because there was no tubercular lesion demonstrable in their lungs, nor could the tubercle bacillus be discovered in the examination of the sputum. These cases have been followed carefully. The hemorrhage, at times, would range from two-ounces to a quart. In one case I was hurriedly summoned; a carriage was sent for me to come at once and attend a hemorrhage case. It was only about five minutes drive. When I arrived they were holding a basin to receive the blood. The patient was a man of two hundred pounds, a man of magnificent physique, and he had lost over a quart of blood. The flow had about ceased when I arrived. I kept him in bed for a few days. Examination at the time showed that the larynx and post-nasal cavity were filled with blood. The discharge was very copious through his nose and pharynx. We could find no evidence of tubercular lesion in his lungs, and no bacilli in his sputum. Inasmuch as I have referred at such length to this case, I might as well end it. During the next two or three years he had several more hemorrhages almost as copious, and about a month ago had three hemorrhages in one night—was almost exsanguinated. For four days after this I saw him daily. Examination still failed to discover any source of the hemorrhage, but I was convinced that such an amount of blood could come from no source but the lungs. On the

*This paper was published in the May, 1898, number of these ANNALS.

fifth day I found evidence of tuberculosis in the right apex. He is now running the course of the most typical case of rapid tuberculosis which I have ever seen. I fully expect him to be dead when I reach home. This is one of the cases of suspected laryngeal hemorrhage which was undoubtedly from the lungs. No tubercular bacilli had been found in his sputum until the last week.

During the Christmas holidays I saw a gentleman, a brother of one of our distinguished colleagues, who had had hemorrhage of this same type. I telephoned his brother, told him of these hemorrhages, and that I was certain the patient had tuberculosis. He said, no, very positively, that there was absolutely no tuberculosis. He told me that examinations had been repeatedly made, that there was positively no tuberculosis, and that the hemorrhages were from a local laryngeal source. I examined one of the clots and found tubercular bacillus, and in an examination of the lung, found a slight infected area. I saw another case of the same type of hemorrhage about four years ago. He came to me the day after the first hemorrhage and on examination I thought I could distinguish a lesion in his post-nasal cavity. I was suspicious of tuberculosis, but I told him not to worry, that the hemorrhage probably came from the lesion referred to. I treated him for a few days, and then saw him no more for about six months. He then had another slight hemorrhage. I examined his chest and some of the blood clots, but could find nothing. A short time afterward there was a copious hemorrhage. I kept him under treatment of the post-nasal cavity for some time. He gained in flesh, his physical appearance improved in every respect, and he kept on improving. All at once he commenced to run down; examination at this time showed the presence of the tubercular bacillus in his sputum, and he is now in Ashville under treatment for tuberculosis. Therefore I say we must be very careful in asserting that a hemorrhage comes from the larynx or from the pharynx or the post-nasal cavity, unless we can see sufficient in these regions to account for the amount of hemorrhage that takes place. We all know how frequently these hemorrhages do take place from the lungs in which we

can find no evidence of tubercular lesion at all, until, finally, the tuberculosis is fully established.

Dr. S. E. Solly, Colorado Springs, Col.: This is a subject that is exceedingly interesting to me. Living in Colorado, such cases often come under my notice. Of course, we all know that cases of laryngeal hemorrhage do occur and Dr. Straight's case may have been of this type; but in my experience they are very rare. As Dr. Richardson has said, when the hemorrhage is profuse it is generally from the lungs. I have never seen a case of laryngeal hemorrhage in which the hemorrhage was the cause of death, and I cannot but think that the case under discussion was one of pulmonary hemorrhage. We are very apt to think that a case of pulmonary tuberculosis must show absolute signs, although we know that this is not always the case. Pulmonary tuberculosis may occasionally exist for years without exhibiting any of the characteristic signs in the chest, and without bacilli being found in the sputum. Whether the X-rays will help us to discover these cases earlier or not I am not personally sure. We are all working upon this question in Colorado, success has already been expected by good authorities in other places.

I think in a case of hemorrhage where there is no discoverable source that we should examine the temperature carefully. A slight rise in temperature may prove a clue to the diagnosis. Of course the rise would not be large and might be due to the mental perturbation, but if we get a little rise in the afternoon it certainly should be taken into consideration. Tuberculosis may be present, and yet remain limited and quiescent, and yet it does not give rise to advancing disease, that is, the disease will be limited and remain quiescent perhaps for years.

Dr. Robert Levy, Denver, Col.: I would like to ask Dr. Straight if he made a careful search for aneurism in the latter case.

Dr. H. S. Straight, Cleveland, O.: A careful examination revealed no suspicion of aneurism.

Dr. Henry L. Wagner, San Francisco, Cal.: I am reminded by Dr. Levy of a case, I had observed some years ago, where post-mortem examination showed no tuberculosis. The patient had had several hemorrhages

which seemed to come from the trachea, and a careful examination was made for tuberculosis, but nothing could be found, neither any bacilli in the sputum. A careful examination showed a marked pulsation of one tonsil, and I referred him to one of my colleagues for physical examination, by whom the diagnosis: aneurism of the aorta was given. The hemorrhage from the throat was quite profuse and almost impossible to control. Some three or four months later, the patient died, and the post-mortem verified the diagnosis.

Dr. Price Brown, Toronto: About five years ago a man aged sixty-four came under my observation. He was an Englishman, one of your high livers. He consulted me in regard to a hemorrhage from the throat. He weighed some two hundred pounds. I examined his pharynx and found it covered with little blood vessels. He was a very plethoric person, and I thought the hemorrhage might and probably did come from this net-work of veins. I put him on a light diet and he lost about twenty pounds in flesh. I also cauterized several of the little blood vessels in the back of the throat. That was five years ago. He kept his weight down to about one hundred and eighty to one hundred and ninety pounds. He has had several hemorrhages since. He is still alive and an active man, sixty-nine years of age. The short diet is still persisted in. I think the hemorrhage may be due in plethoric persons to hemorrhage through the thin walls of the exposed blood-vessels; especially is this the case with old men.

Dr. F. J. Quinlan: I have been very much interested in the remarks of the various speakers. I think in all such cases of spitting up blood that particular attention should be paid to the lingual tonsil as well as the base of the tongue. The hemorrhage is frequently associated with a varicose condition of the vessels. These hypertrophied tufts are frequently congested and filled with blood, and the blood vessels may be very easily ruptured by coughing or any unusual exertion. It is well, therefore, to carefully scrutinize these parts. It is wise for us to be cautious in the removal of this redundant tissue and not to cut too deeply, especially if the parts show marked vascularity.

I think one of the speakers has said, that in arriving at

a diagnosis. the temperature should be taken into consideration. If there is a tuberculous condition, there is almost certain to be a slight rise of temperature, and a more or less acceleration of the pulse, though perhaps no bacilli may be found.

Some Anatomical Points in the Structure of the Lingual Tonsil of Practical Bearing on its Pathology. (Abstract.)

By Lennox Browne, F. R. C. S.: Though some observer has stated that the lingual tonsil enters into a period of atrophic retrogression at the age of puberty, and further that in early adolescence, at the age of twenty years, the lingual tonsil ends by being reduced to some follicles of lenticular shape, so scattered as to represent complete atrophy, the author takes the opposite position. Experience has demonstrated that chronic hypertrophic inflammation of this glandular structure is without doubt the most common form of disease affecting this tonsil.

The difference between the lingual tonsil and the tonsil situated in the fauces and upper pharynx, is that the former does not possess the tendency to atrophy at puberty, but on the contrary grows while the others relatively diminish.

It is exceedingly rare to find a hypertrophied condition of the lingual tonsil before puberty. Few such cases are recorded. In one of the cases reported by McBride there were no symptoms. In the other reported by Hickman, the condition was congenital, and death resulted shortly after birth from asphyxia, directly referable to the growth.

Histologically we find in the pharyngeal tonsil patches of honeycombed homogeneous colloid-looking substance enclosed in what is apparently the remains of a lymph vessel, for these channels are for the most part much dilated. This appearance of the tissue points to a retrograde metamorphosis. Such changes are never seen in the faucial or lingual tonsils.

The mucous and albuminous glands of Henle and Salter are only occasionally seen in the palatine tonsil and never in the pharyngeal structure, are abundantly present in the lingual tonsil, it being exceptional not to find them.

In the crypts which are at times found in the fourth ton-

sil, columnar ciliated epithelium are seen, a peculiarity not found in the other tonsils.

Superficiality of the veins at the base of the tongue is quite frequently seen, and they may be present and give rise to unpleasant symptoms, even though the lymphatic structure is not hypertrophied.

The author mentions a case of pharyngeal tenesmus occurring in a female patient, seventy-two years of age, caused by an enlarged lingual tonsil, thus proving that the gland does not tend to atrophy at puberty.

Acute inflammation, simple or infectious, are not a common involvement of this region. The suggestion is made that the comparative immunity to bacillary infection enjoyed by the lingual tonsil is due to the greater flushing of this area by the abundant secretion of the mucous and albuminous glands.

The severe pain which is at times experienced in diseases of this tonsil is due to direct stimulation of the glosso-pharyngeal nerve, while existing laryngeal symptoms probably result from reflex irritation of fibres of the superior laryngeal nerve supplying this site.

The superficial and plentiful arrangement of the venous plexus at the lingual base may account for the tendency to chronic enlargement and engorgement as a result of vocal abuse.

Pharyngitis varicosa may cause bleeding, and so give rise to false diagnosis. Such a case is mentioned by the author. "Throat hemorrhoids" is a term which graphically describes these enlarged and lingual veins.

The imaginary ulcer may arise from hypertrophy and varix of the lingual tonsil, or in another situation. A site which is prone to pathologic processes are the "fimbriæ linguæ," two rough patches seen on each side of the tongue, just in front of the anterior faucial pillars.

Dr. Wendell C. Phillips, New York: I did not have the pleasure of hearing all of the paper. It has been my experience that removal of the hypertrophied tissue at the base of the tongue has not usually been followed with great improvement to the singing or speaking voice, but much relief to the painful irritability of the throat may be expected.

Dr. Max Thorner, Cincinnati: I do not think Dr.

Straight is entirely wrong in the matter of too frequent operations upon hypertrophied tonsils, and that often the enlarged tonsil does no harm; but on the other hand I have seen very excellent results produced by the removal of the hypertrophied growth. I think in making our examinations that at times we do not make them sufficiently complete. The trouble is not always located in the pharynx nor in the laryngeal region, but on the base of the tongue. There are many conditions which do not need operations; cases of acute inflammation of the lateral region of the tongue and of the lingual tonsil. These affections are very painful, and the patient goes from one physician to another for relief, but strange to say the actual source is often overlooked. If you look into the mouth with a tongue depressor, you cannot see the trouble. If you take a napkin and draw the tongue well forward and sideward, you will see these regions very distinctly, and will frequently discover inflamed spots on the side of the tongue as small as pin heads. These may be treated if actually inflamed by any of the astringents; nitrate of silver in 5 to 10 per cent. solutions is often very beneficial. If the lingual tonsil is very much enlarged, however, as the result of the chronic inflammation, or if the papillæ on the side of the tongue are greatly hypertrophied, and are a constant source of irritation, nothing will give better results than their removal by either clipping them off, or destroying them with the galvano-cautery.

Dr. Dwight L. Hubbard, New York City, N. Y.: It seems to me in a study of this kind we should not entirely overlook the several constitutional conditions which exist, such as a rheumatic diathesis, uric acid, etc., etc. There is another point, also which should not be overlooked. Patients with enlarged lingual glands will always have a throaty condition of the voice, and I think this is sometimes caused by not using the voice properly, not calling into use the air chambers above. The volume of air is not carried upward or forward with sufficient effort, and the voice lacks resonance. In these cases it is our duty to remedy any pathological condition of the pharynx, to treat these disturbances, and also to teach the patient how to use the voice properly in order to produce a proper head or nasal resonance. By little instruction in this latter particular you will find your patients will gain in range in the upper and lower registers with a decided clearing up of the throaty quality.

Deductions From a Study of Unilateral Nasal Stenosis.
—Lewis A. Coffin, New York. (Abstract Dr. Coffin's

Paper.) By stenosis is meant that stenosis, partial or complete, arising primarily from a deformed septum.

More air passes through the free side than would if that nostril were of normal potency. The membranes therefore act functionally upon more air, and are more open to irritation, and possibly to a greater negative pressure.

The free side, from the overwork, or irritation, or both, frequently presents an hypertrophied condition, the membrane of the obstructed side appearing normal, or less hypertrophied.

When in the free side we find an atrophic condition, in the obstructed side the membranes appear less atrophied, hypertrophied or normal.

More advanced disease of the membranes in the obstructed than in the free side is seldom seen.

Reasoning from the above, hypertrophic rhinitis is a result of overwork or irritation, and atrophic rhinitis is a condition following and dependent upon an earlier hypertrophy.

In all inflammatory catarrhal diseases of the nose, we should pay proper attention to cleanliness, and remove existing obstructions. Our aim should be to throw less work on the membranes of that organ, by seeing that our patients breathe a proper air, or by plugging the nares.

The density of air in an open cavity will be modified by the velocity, volume or direction of a current of air passing over its opening. Inasmuch as accompanying a unilaterally stenosed nose, we may have catarrhal disease of either or both ears; we can attribute the change in the ear to the negative pressure produced in the Eustachian tube by the change in the current of air passing over its open end.

Deductions From a Study of Unilateral Nasal Stenosis.—Lewis A. Coffin, M. D., New York.—Discussion.—A woman who was treated by me some three years ago, had the most exaggerated case of atrophic rhinitis in one nostril that I have ever seen. There was complete closure of the other nostril, due to a deviated septum. I induced her to allow me to operate upon the septum, and without any further treatment of the atrophic rhinitis, she disappeared entirely from my notice, for a period of about one and a half years, then she returned. There had been no treatment except more or less desultory attempts at cleansing. I found entire absence of disagreeable odor, and in the nasal cavities a small quantity of thin mucus, not especially adherent and easily removed. With the re-establishment of normal nasal breathing in each nostril, nature had largely cured the atrophic condition. When one nostril does all the work, atrophy is likely to occur, and the stenosis of the opposite nostril, if present, should be operated upon to prevent this atrophy, if for no other reason.

NOTES AND ANNOUNCEMENTS.

(Please address George Morgenthau, M. D., 34 Washington Street, Chicago.)

Dr. Gelosio Chincini has become private-docent of oto-rhino-laryngology at Rome.

The Second Spanish Oto-Rhino-Laryngological Congress has been postponed till the spring of 1899. The exact date will be announced later.

C. Heath, H. Tilley, St. Clair Thompson, F. Powell, have been appointed members of the staff of Golden Square Hospital for diseases of the throat, at London.

Dr. Edmund Victor Meyer, for some years assistant at Professor Fraenkel's Policlinic for diseases of the throat and nose, in Berlin, has been made a privat-docent at the University.

Dr. W. K. Simpson has been appointed professor of laryngology at the Columbia University Medical College, and Dr. J. E. Newcomb at the Cornell University Medical College, in New York City.

The International monument erected in honor of Dr. Wilhelm Meyer will be dedicated at Copenhagen on the 25th of October. Dr. Felix Semon will speak in the name of the International Committee.

THE MONUMENT TO WILHELM MEYER.

The monument to the discoverer of adenoid vegetations was unveiled on October 25th, at Copenhagen. Sir Felix Semon, of London, the initiator of the proposal to erect the monument, delivered the principal address of the day. It gives us pleasure to print it here:

Mr. Mayor, Ladies and Gentlemen—The Executive Committee of the Wilhelm Meyer Memorial have delegated to me the signal honor to hand over the monument, erected by international subscriptions in his honor, to the care of the Copenhagen municipality. In fulfilling this pleasing task I must regret my inability to address you in the Danish tongue, and for this reason alone I must not trespass long upon your patience. At the same time this occasion is

such a very unusual one that I may be permitted to say a few words pointing out its meaning and importance.

We are assembled here to-day to unveil a monument erected in honor of the late Dr. Hans Wilhelm Meyer. A monument in honor of a physician—that in itself is a very uncommon thing. To be immortalized by the sculptor's art in bronze or marble in a public place, has usually been reserved, from times of old, to some few classes of the community only. Great rulers, benevolent or warrior princes, distinguished statesmen, victorious generals and admirals—these are the privileged mortals in honor of whom most frequently monuments have been erected; more rarely has such a reward fallen to the lot of great artists, poets, painters, musicians, sculptors; still less frequently have men of science, philosophers, law-givers, inventors, and other leaders of intellect thus been distinguished; few and far between are monuments erected in honor of members of the medical profession. Nor is the reason of this far to seek. Slowly and by labor of many is the edifice of scientific medicine being erected. The brain work of the lifetime of a physician usually means hardly a single brick in this ever-growing structure. Even if of uncommon importance, his achievements rarely pass outside a comparatively narrow circle within his own profession; not often is his fame of a rarely universal character amongst his own compeers; still less frequently does it appeal to the imagination, to the gratitude of the community at large. Thus the ordinary fate of the scientific physician, even if in his day he has been successful in promoting, by teaching and writing, the welfare of mankind, as a rule is not of a largely resplendent character. A few complimentary obituary notices, the grateful recollection of some friends and pupils, not as a rule lasting longer than into the immediately following generation, finally a resting place for his name in those corners of medical literature in the development of which he has been most active—this is the summary of the life-work of most leaders of medical profession.

What, then, has been the conspicuous merit of Hans Wilhelm Meyer that he should have been singled out for so unusual an honor as the one which is going to be paid to his memory to-day? The answer is easily given. It is now just thirty-one years since he was one day consulted by a girl, aged 20 years, who suffered from deafness, whose voice was most peculiar, and the expression of whose face was almost idiotic. Treatment directed to the ears and to the throat failed, and it was not until the puzzled observer one day introduced his finger into the space between the nose and throat that an unexpected solution was met with. Instead of penetrating into an open cavity, the finger was arrested by a large, soft, easily bleeding mass, a condition the existence and nature of which in those days formed a *terra incognita*. Meyer succeeded in removing this mass by operation, with the result that the deafness was materially improved, the voice became natural, and the idiotic expression of the face disappeared.

Gratifying as this result was in itself, it was however only then that Meyer's real merit commenced. Schopenhauer has truly said that not he is finder of a thing who lifts it from the ground and drops it again, but he who, takes it up and recognizing its value, keeps it. If Meyer had regarded his experience in the light of a mere pathological curiosity, again years and years might have passed before the importance of the subject was realized. But with the true instinct of the scientific observer who develops what is ultimately to become an important truth from small beginnings, Meyer did not drop the clue which a casual observation had placed in his hands. He began studying the subject in all its bearings; he examined the masses he had removed with regard to their structure, and finding them to be glandular in character gave them the name of "adenoid vegetations;" he investigated the results which obstruction of the space between the nose and throat exercises upon respiration, hearing, articulation, facial expression, general, mental, and bodily development; he examined 2000 Copenhagen school children with regard to the frequency of this affection; he made himself the apostle of his own teaching by proclaiming it not only in his own country, but also in scientific publications abroad. In one word, to such an extent did he realize the true significance of his discovery that he left to his successors merely the addition of more or less important details, whilst the foundation of the edifice erected by him has remained unchanged from the time of his own first publication on the subject.

Nevertheless it cannot be said that this teaching at first made very rapid headway. When in 1881, he introduced a discussion on the subject at the International Medical Congress of London it came almost—I well remember—as a novelty to many of his audience, although that was mainly composed of specialists, and it was only in the next decade that the true importance of the subject was realized throughout the world. It was at first not easy to convince the bulk of the medical profession, the parents of the mostly juvenile patients, and the schoolmasters that a discovery had been made which, like few others in medicine, was of the utmost practical importance concerning the development of a healthy mind in a healthy body of the rising generation, and it needed the irrefutable proof of the surprising improvements seen in the subject of successful operations to make this conviction a universal one. But truth, though slowly, ever forces its onward way, and when Meyer three years ago closed his eyes he had the satisfaction of knowing that the value of his discovery had at last been universally recognized. Already then the number of those who through the timely removal of the obstructing glands had been saved from life-long deafness or from the lasting results of obstructed nasal respiration amounted to many thousands, and the benefits achieved through Meyer's merits will continue to accrue in future times to hundreds of thousands and to millions.

The proposition made immediately after his death to erect a statue to him at Copenhagen under these circumstances met with the

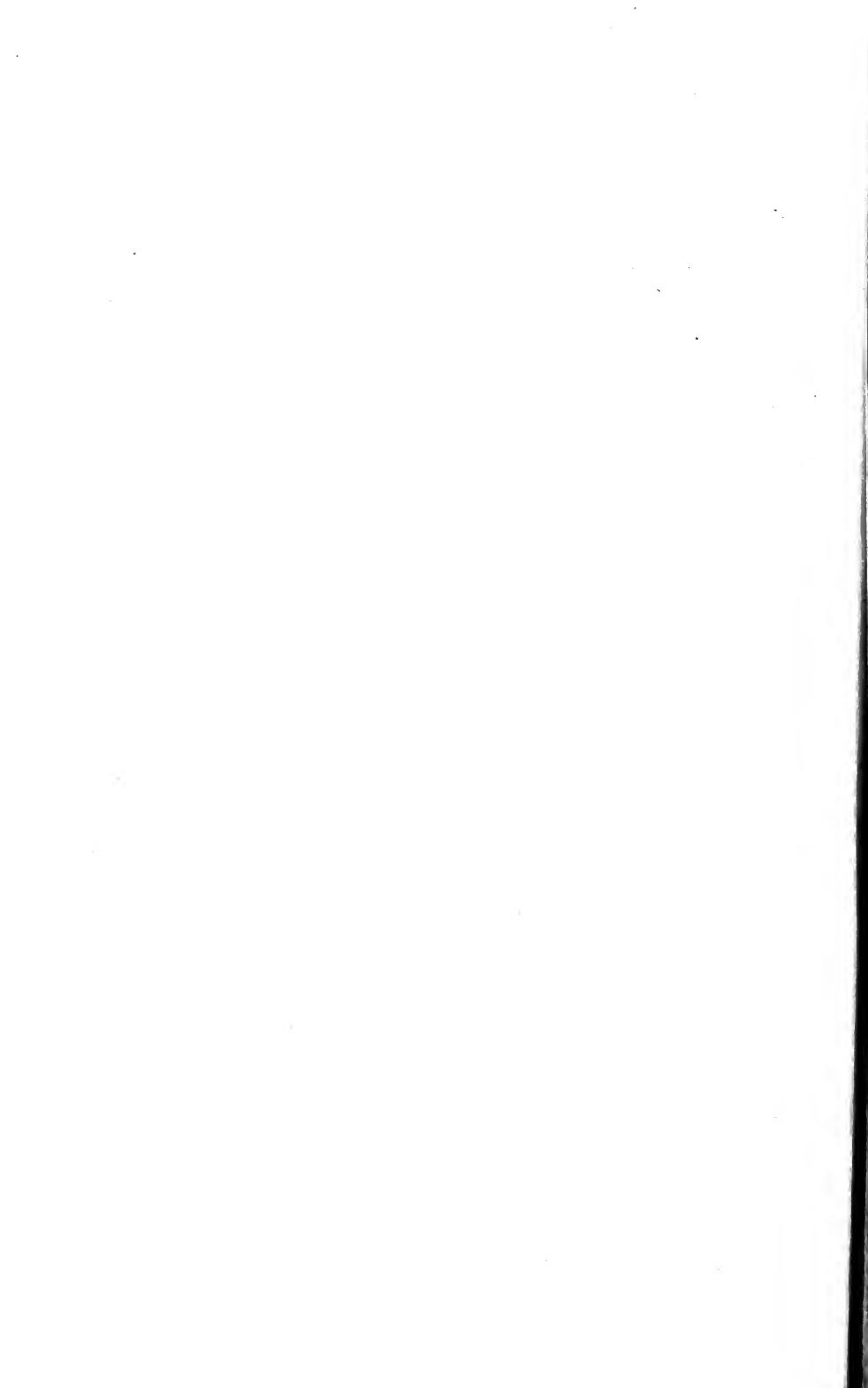
most sympathetic reception; committees were formed in almost every country in which scientific medicine is established; in Great Britain the movement was particularly favored by the patronage which Her Royal Highness the Princess of Wales most graciously extended to it; physicians, surgeons, specialists, general practitioners, grateful parents, former patients showed themselves anxious to contribute their mite toward a truly international monument of gratitude of his contemporaries toward the deceased great benefactor of the human race, and the result we see to-day before us, in the shape of this beautiful and touching monument, which will carry the names of the artists, Messrs. Bissen and Runeberg, to every quarter of the globe.

It is true that in the general chorus of approbation a few dissenting voices have been heard. "What after all," it has been said, "has been Meyer's extraordinary merit? He put his finger up behind a patient's palate, and found an obstruction which he removed, and which turned out to occur more frequently than could at first have been supposed." Very true, but need I remind my audience that the same specious argument has been used against the claims of Christopher Columbus? America had been there all the time, only waiting, as it were, for the bold sailor who dared to go westward until he struck a new continent. But Columbus did it! The naso-pharyngeal cavity had been there waiting for its explorer ever since man in his present shape has been in existence; pathological obstruction of this cavity has been as old as the records of sculptor's art allow us to go back. In the last paper on the subject, which Meyer wrote a few months before his death, he showed that the facial expression of some Greek statues and busts which have come down to our times left no doubt that the originals had been suffering from "adenoid vegetations;" mediæval portraits of historical personages prove the same fact. Any physician might have conceived the idea of investigating the subject as Meyer did in 1868, but it was left to Meyer to do it, and having done so to release the importance of his discovery, whereby he became, without exaggeration, a true benefactor of the human race. That is why we are assembled here to-day, that is why we do honor to his memory.

Gentlemen, the country of Denmark has been rich in producing men of eminence in almost all branches of human activity. If in many instances the nature of their distinction is better known to their own compatriots than to the world at large, this is but natural, and is an experience which is repeated in every country under the sun. There are some Danes, however, whose names are household words throughout the civilized world, whose reputation is not a local but a universal one, and who, whilst their country may be justly proud of them, belong, as it were, to mankind at large. Need I mention the names of Tycho Brahe, of Bertel Thorwaldsen, of Hans Christian Oersted, of Hans Christian Andersen, of Niels Gade? To those great names I think may be reverently added the name of Hans Wilhelm Meyer, one of the greatest benefactors to mankind medicine has known.

Mr. Mayor, in the name of the subscribers to this monument, who have gladly contributed toward this external sign of gratitude erected in memory of your great compatriot, I have the honor to deliver the monument of Hans Wilhelm Meyer to the safe keeping of the municipality of Copenhagen.





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